

R E D E V E L O P M E N T O F
F R A N K L I N P A R K Z O O

A THESIS SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF
ARCHITECTURE AT MASSACHUSETTS
INSTITUTE OF TECHNOLOGY

SUBMITTED: AUGUST, 1952

TO:

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HEAD OF DEPARTMENT OF ARCHITECTURE

BY:

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ABSTRACT

REDEVELOPMENT OF FRANKLIN PARK ZOO by
DONALD P. SCHLEGEL
SUBMITTED FOR THE DEGREE OF MASTER IN THE DEPARTMENT
OF ARCHITECTURE ON AUGUST 15, 1952

This thesis is an Architectural Study of Zoological Parks presented with the hope that it will provoke new trains of thought in the future development of zoos by showing how Architecture can assist in creating an exciting zooscape.

Animals have always been kept by man, but not until 1794 was the first zoo formed. By 1900 zoos existed in most large cities throughout the world. In 1913 Carl Hagenbeck displayed animals in moated enclosures and duplicated natural environment, thus doing away with bars and cages. Today all zoos are striving to exhibit in a natural way. Only Architecture has failed to assist in this development.

Franklin Park Zoo, which was conceived in 1885, and accomplished in 1913, is in a deplorable state today. It is studied to show how Architecture can become a part

Rotch (Arch) Nov 7, 1952

of this new thinking.

In this study the buildings are given complete freedom. Space and landscape flow uninterruptedly through the structure, and the species are exhibited so that a third dimension is realized.

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LETTER OF SUBMITTAL

124A Glenville Ave.
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June 23, 1952

Dean Pietro Belluschi
School of Architecture and Planning
Massachusetts Institute of Technology
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Dear Dean Belluschi:

As a partial requirement for the degree of Master in Architecture, I wish to submit for your approval my thesis subject, "Redevelopment of Franklin Park Zoo".

I have always been interested in animals and have visited zoos in Cincinnati, New York and Philadelphia. I realize now that there are very few examples of good architecture in the housing of animals. In September of 1951 I visited Franklin Park Zoo and found conditions there deplorable especially in view of the fact that a city of Boston's stature should be able to maintain a fine zoo.

I therefore feel that this is a very logical thesis because sound basic research is needed on this topic.

Sincerely yours

Don P. Schlegel

ACKNOWLEDGMENTS

I AM INDEBTED TO THOSE WHO HAVE ASSISTED ME IN
THE PREPARATION OF THIS THESIS AND WHOSE CRITICISM
HELPED TO BRING IT TO ITS FINAL CONCLUSION. THEY
ARE THE FOLLOWING:

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Lee Crandall
General Curator, New York Zoological Park
New York, New York

Bradford Washburn
Director of the Museum of Science
Boston, Massachusetts

To those persons so closely associated with Franklin
Park Zoo who gave no assistance---

No improvement can be made in Franklin Park
Zoo, which sorely needs it, unless a desire
for such is manifested.

DEDICATION

TO MY WIFE JEAN, WHO HAS
GREATLY ASSISTED ME IN THE
STUDY OF ARCHITECTURE

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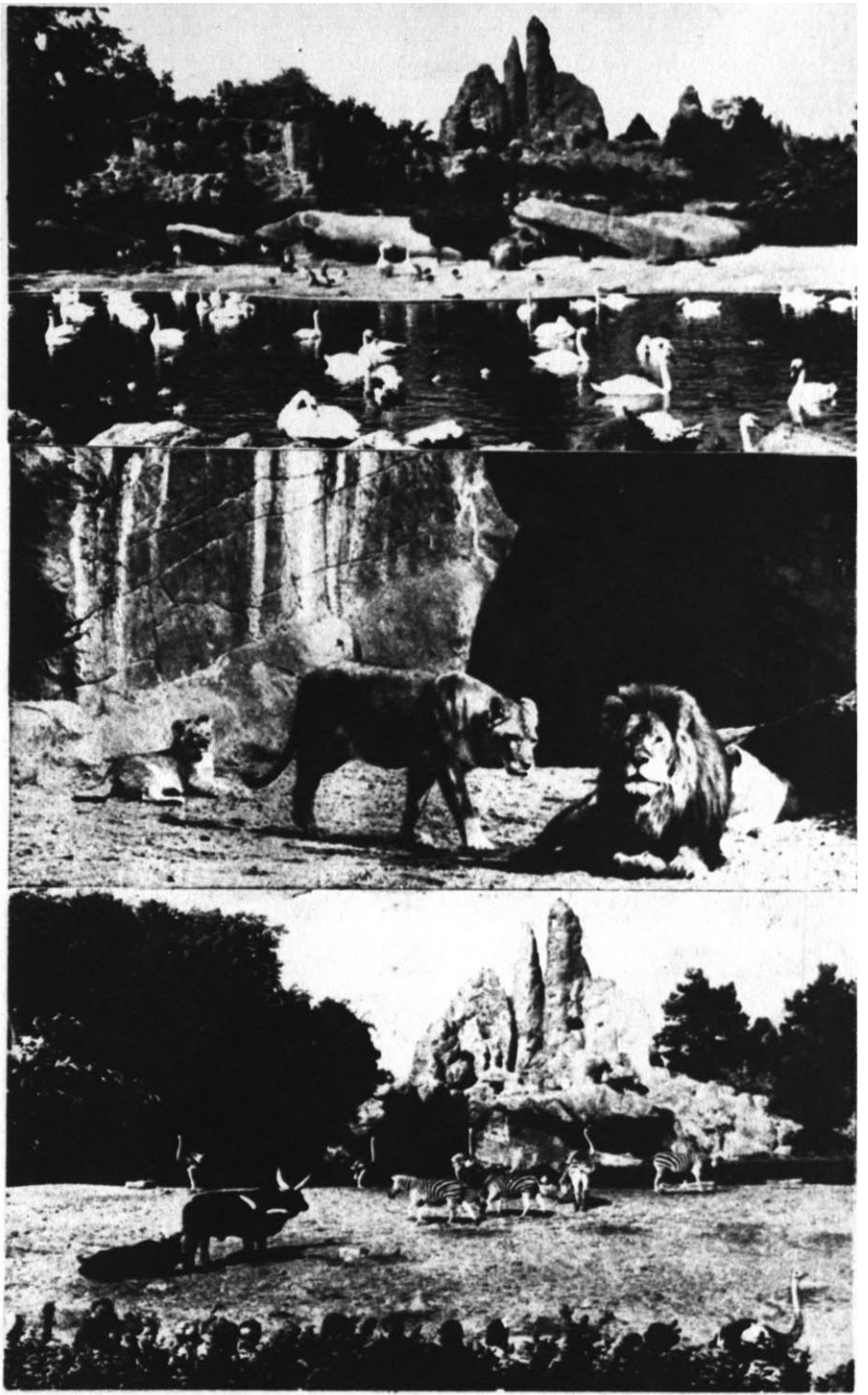
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HISTORICAL BACKGROUND

THE EVOLUTION OF ZOOS

"The urge to keep wild animals in captivity seems inherent in man. As far back as we know his history he has pursued his fellow creatures, trapped them and made them his playthings, his servants, and sometimes even his gods."*

In Egypt we find many mummified bodies of beasts and birds. The Greeks and Romans used to import wild animals from foreign countries for exhibition in large cities. They used them largely in spectator sports in arenas, animal pitted against animal or animal matched against gladiator. We have found records as far back as 865 B. C. that Persians trained cheetahs to secure food, and the sport of falconry was practised throughout the Mediterranean and China areas.

Man has a great and universal passion for the keeping of animals. The dog, the cat, and birds of all types are common household pets, however the collecting of wild animals is a luxury practised by nations who have established stability and economic security.

* Mann, William M.-"Wild Animals In and Out of the Zoo"-
Smithsonian Scientific Series, Volume VI-1930.
page 1.

Berridge states that history tells of many reigning monarchs at one time possessed menageries, and that it is from such collections of wild beasts and birds that modern Zoological Gardens may be said to have evolved.*

The first Zoo on record, as we know it today, was conceived in Paris. It was originally created as a Botanical Garden in 1626 by Louis XIII, and soon after a museum of Natural History was established on the same site. In 1794 a collection of animals belonging to the Manager of the Palais De Versailles was donated and the Jardin Zoologique d'Acclimation was born.

In England, the earliest Royal Menagerie existed at Woodstock, Oxfordshire in the reign of Henry I. The collection was transferred to The Tower of London during the reign of Henry III. In the year 1826 the Zoological Society of London was founded "for the purpose of advancing the Science of Zoology and for the introduction of new and curious animals from foreign countries". Under the guidance of Sir Stamford Raffles and Sir Humphry Davy the gardens at Regent's Park were opened. Slowly they brought to the Zoo, creatures that had never been seen outside their native countries. In 1834 four giraffes were bought for \$23,000. In 1836 they imported the first chimpanzee ever seen in England. The Tower of London and

* Berridge, W. S.- "Zoo Animals"-A. and C. Black-London, 1932. page 5

Windsor Menageries were soon disbanded and the Zoo at Regent's Park became the chief attraction.

In 1830 a Zoo sprang up in Dublin, Ireland and in 1837 the Zoo at Amsterdam, Holland was founded. In Germany, which was known preeminently as the "Land of Zoos", every city and every town of any size maintained one before the two wars practically destroyed all of them. In 1900 there were more Zoological Gardens in Germany than in the whole rest of Europe.

The first Zoo in Germany, founded by the well known Zoologist, Lichenstein, in 1841 was started when Frederick William IV presented the Royal Pheasantry and many of his other animals to the Zoo. After this time Zoos were formed throughout the rest of Europe.

The first Zoos in the United States began to appear about 75 years ago. However, as early as 1854, the Zoological Society of Philadelphia was incorporated. Their plans for a Zoo were disrupted when the Civil War broke out. It was not until 1873 that work was finally begun on a 35-acre plot in West Park, now known as Franklin Park. In July, 1874 it was opened to the public which averaged one thousand visitors a day that year.

In 1875 the Cincinnati Zoo was opened to the public under management of a stock company which purchased 67 acres of ground for the exhibition of an animal collection, but it soon suffered financial difficulties, and by 1897 the institution was in receivership. It was later refinanced and from 1933 on has been a growing institution.

The National Zoological Park had its origin in a small group of animals, brought to Washington in 1888, and housed in small cages at the Smithsonian Institute. Washington's citizens became increasingly interested in this collection and soon a living animal section with William Hornaday as head, became a part of the museum. About this time, people began to realize that the destruction of game would make several species extinct. They realized that a Zoological Park would not only breed and perpetuate the nearly depleted species, but would also serve as an educational and recreational center for persons interested in animals.

In 1888 one hundred seventy-six acres was acquired in the valley of Rock Creek, a small tributary of the Potomac, and with \$100,000 appropriated by the government, and a plan by F. Olmsted, a national Zoo

had its origin. Soon afterwards two elephants were presented by a circus and were marched out to the site by William Blackburn, Headkeeper,* and the Zoo was now a reality.

It was not until 1907 that the first new theory in Zoo design evolved. For forty years Carl Hagenbeck was far and away the largest animal dealer in wild beasts. He had visited every Zoo of note in Europe and the United States, and had noted their failures and successes, so that when he built his own Zoo at Stellingen--Hamburg, Germany, he aimed for three things; to give captive beasts plenty of room for exercise, to make their habitat as natural to their native haunts as possible, and to do away with iron bars and cages. Hagenbeck said, "There will be no cages. You will stand here and look over vast plains covered with animals of every description, all apparently in the same enclosure, but they will be separated by wide ditches so ingeniously hidden by rockwork that it will appear to the eye as if animals were in the Park together."[#]

* William Blackburn was associated with Barnum and Bailey Circus as head animal keeper.

Peel, C. V. A.-"The Zoological Gardens of Europe"
F. E. Robinson & Co. London 1903-
page 247.

Around 1900, interest in animals was evident throughout the country and Zoos were being formed in most large cities. Most of these were patterned after the Hagenbeck Zoo.

HISTORY OF FRANKLIN PARK ZOO

During the 19th Century there was a great deal of interest centered in the expansion of Boston's park system. Many felt that a rural environment must be incorporated within the city, and that this environment should form the backbone of the recreational and breathing areas of Boston. They felt that with a sufficient number of parks, the city would become healthy, thus depriving it of its natural tendencies to waste away into blighted slum areas.* With this in mind, in 1880, the City Council requested the Park Board to submit a report on the cost of acquiring 500 acres of land in West Roxbury which was jointly owned by several families.# This report was accepted by the Council, and by December of 1885 the land was acquired.

The Park Board then looked for a Landscape

* Notes on the Plan of Franklin Park--Department of Parks, City of Boston - 1886

See Park Board Report of 1880--Department of Parks, City of Boston

Architect who could develop the land into a rural park where city people could go to enjoy the scenery. it was decided that F. L. Olmsted should be commissioned to do the design.*

In 1885 Olmsted submitted his plan for this area# which now consisted of 545 acres and was known as Franklin Park.° The major part of the Plan was designated as a country park, to be left in its natural state with only the additions of roads and paths, and consisted of 334 acres, so that city people could enjoy the scenery.

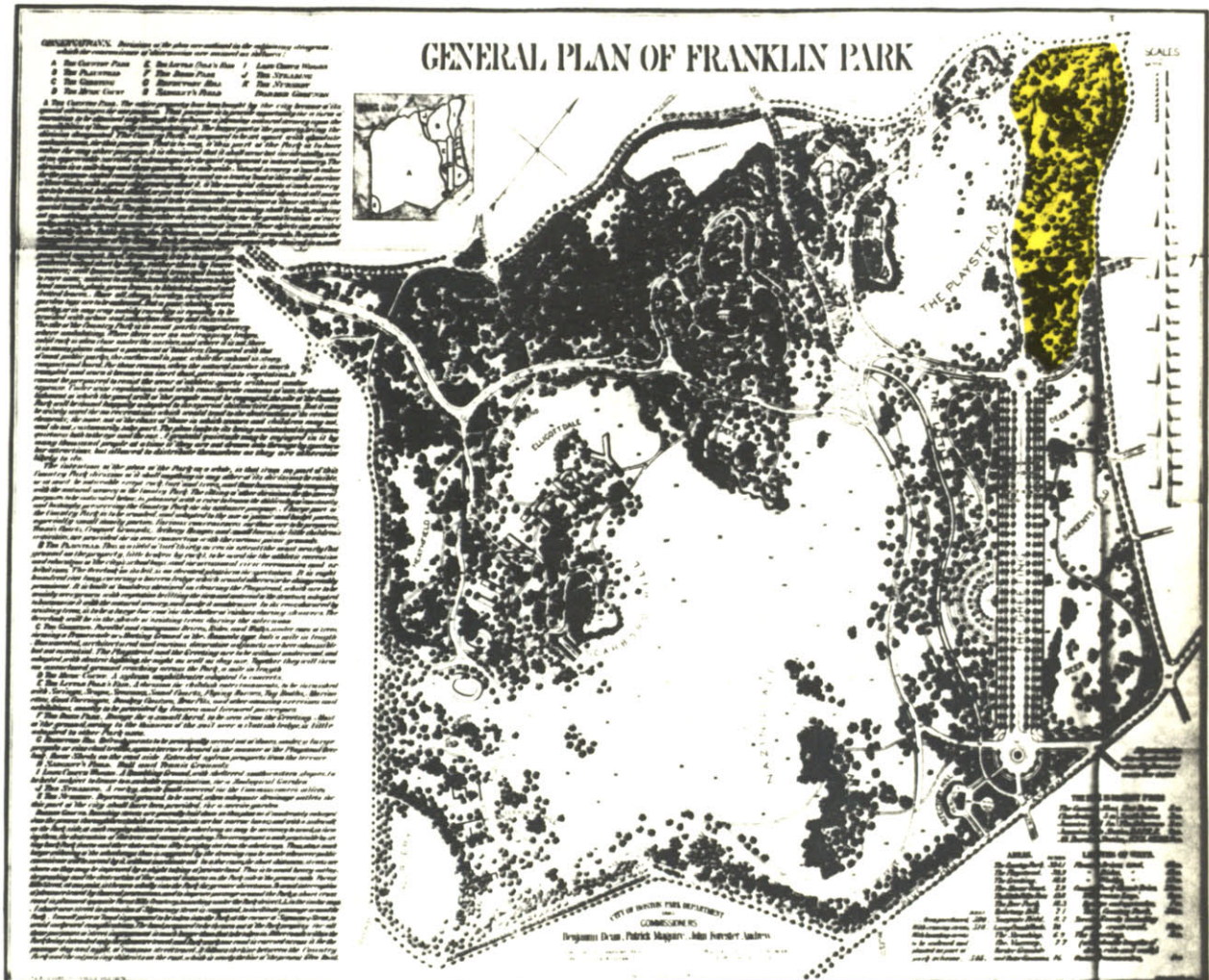
A Recreational area of 40 acres was allocated to the north of the Country Park, and was designated as the Playstead.

For the entrance to Franklin Park Olmsted designed a formal greeting which consisted of a series of parallel drives and walks. The Greeting was 300 ft. wide and 1/2 mile long and was framed on either side by a double row of maple trees. This formed a

* F. L. Olmsted was a nationally known Landscape Artist and author who did such other work as Central Park in New York City and The National Park at Washington, D.C.

See plate I following page 10.

° Named after Benjamin Franklin who had left money to the City of Boston for development of a park system.



I. F. L. OLMSTED'S ORIGINAL PLAN FOR FRANKLIN PARK IN 1886 DESIGNATES LONG CROUCH WOOD TO BE LEASED TO A ZOOLOGICAL SOCIETY FOR THE EXHIBITION OF NEW ENGLAND ANIMALS.

promenade where people could walk or carriage, meeting friends and enjoying social intercourse.

Flanking the Greeting was the Music Court, where concerts, speeches and other entertainment could be enjoyed by the people.

The children were not forgotten in his Plan, for an area south of the Greeting was designated at the Little Folk's Fair which was to have such things as swings, see-saws, sand courts, and wonderful animal rides like goat carriages and donkey carts and pony rides.

To the north of the Greeting, between it and Seavers Street, was Deer Park where a herd of deer was to be displayed in full view of the people who would be promenading on the Greeting.

Between the Playstead and Seavers Street, was a 20-acre strip of wooded area, consisting of rolling ground, spotted throughout with a series of rock shelves. This was called Long Crouch Woods. The Plan states "This land to be leased to a suitable organization for a Zoological Garden."* This is the first reference to a Zoo for the City of Boston. Olmsted's Plan was accepted by the Park Commission and approved by the City Council in 1886, and work was started.

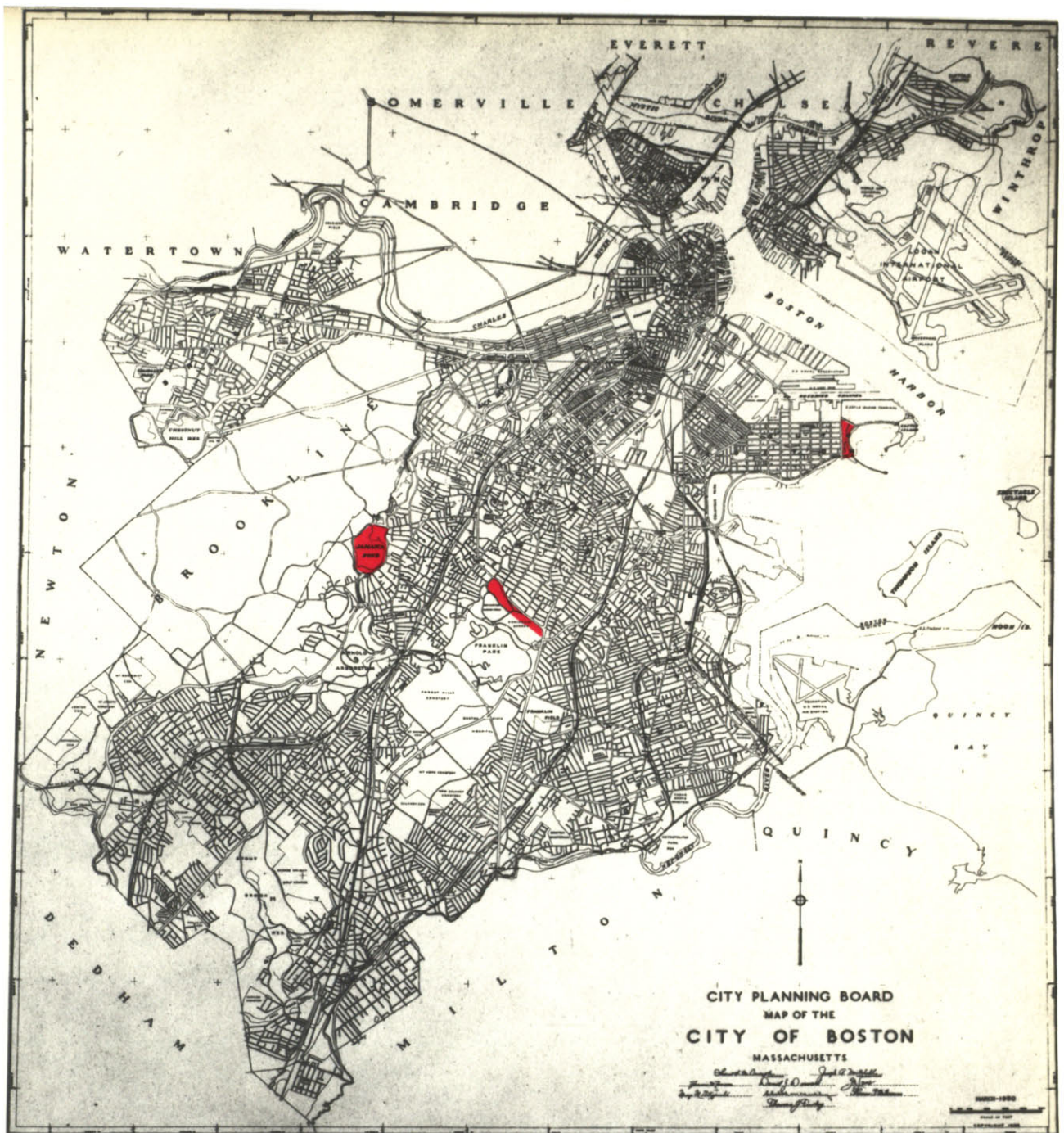
* Boston Park Commission Report, 1885-Department of Parks-City of Boston, 1885.

In 1887 the Park Commission showed great interest in creating a Zoo at Long Crouch Wood. They requested the Society of Natural History to submit a report showing the manner of approach and animals to be exhibited in this area. Six months later the report* was read and the main text is as follows:

Franklin Park area is greatly handicapped by its lack of fresh water and its limited area. Due to these shortages it is suggested that the Zoo be divided into three distinct parts.

1. Marine Park should be established at City Point. This site will be used for the display of salt-water inhabitants. A large aquarium and garden will be constructed to show the natural laws of plants and animals.
2. Jamaica Pond and its surrounding area will be used for the display of fresh water fish and animals, which can then be shown in their natural surroundings.
3. Franklin park will be used for the display of land animals which would be based on a thorough representation of

* Report on a Zoological Garden for Franklin Park-Society of Natural History-Boston, 1889.



II. A REPORT "ZOOLOGICAL GARDEN FOR BOSTON" BY THE SOCIETY OF NATURAL HISTORY IN 1887 SUGGESTED A MARINE AQUARIUM AT CITY POINT, A FRESH WATER AQUARIUM AT JAMAICA POND, AND A ZOOLOGICAL GARDEN AT FRANKLIN PARK WHICH NOW INCLUDED DEER PARK AND SARGENT FIELD.

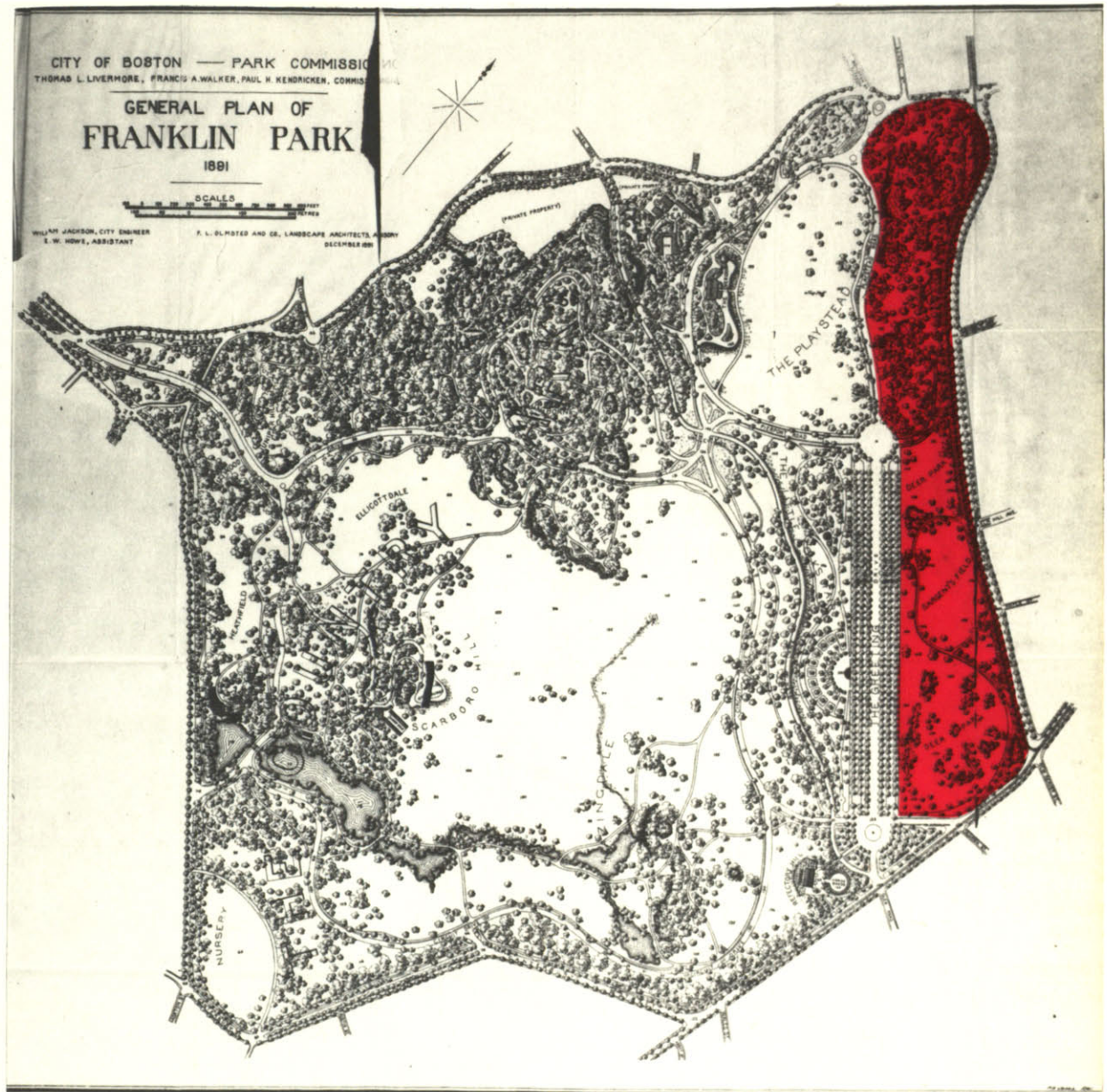
New England fauna which will present to the city people of Boston an opportunity to see these local animals.

The Society of Natural History report goes on to state that a collection of local fauna would be easy to acquire, and that it could be kept out-doors all winter long with only inexpensive shelters required to protect them from the weather. The report also says that the recreational, educational and scientific benefits could best be brought forth by presenting and illustrating the relation of plants and animals to their natural surroundings.

The Society of Natural History felt that Franklin Park was too limited in area and advised the addition of the 26 acres known at this time as Deer Park and Sargent Field as part of the Zoo.* The bird display, which would consist of a flight cage and bird aviary, the winter garden for small tropical animals, the greenhouse and insectuary would be located in this area.

The Society felt very strongly that Marine Park

* See plate III following page 13.



III. AREA SELECTED FOR A ZOOLOGICAL GARDEN BY THE SOCIETY
OF NATURAL HISTORY AND APPROVED BY THE PARK BOARD 1908.

should be started first, claiming that it would be easier to accomplish and less expensive.

To create interest in the Zoo project for Franklin Park, Samuel Sudder wrote a pamphlet*in 1891 which in part states, "Many people want a local Zoo but for this to become a reality more people must rally behind the effort. For those who want to know more about the subject, it would be patterned after the European Zoos. The only difference would be in the animals exhibited, for it would be too expensive to exhibit European animals due to the long winters prevalent in Boston. Animals of the North will be displayed because they are adjusted to the climate and won't need heated houses. They should be shown in their natural state, not in cages like circus animals!"

According to Sudder, the Zoo project should be started at once, but that it would be impossible to undertake the whole project immediately, for it would be a great expense and the people were not ready to support such a great enterprise. This meant that it

* Sudder, Samuel-"Can We Have a Zoo in Boston?"-
Boston Society of Natural History-1891.

must be built in small increments and that the founders should lay a firm foundation so that the rest that follow can continue the development. In the beginning the animal display should be small, thus eliminating much confusion. As an example, the bear exhibit would consist of the black bear, the grizzly bear, the European bear, and the Polar bear, and this would be sufficient.

Sudder felt that at a later date the animal exhibit could be expanded and might even be put in heated buildings behind glass.

In 1908, the Park Board decided to go ahead with the Zoo and acted on the recommendations of the Report of the Society of Natural History of 1887. The Park Board approved the additional area for the Zoo and it now contained 36 acres and was a mile long and 600 ft. at its widest point.

In 1910, the City gave an appropriation of \$5,000 to be used for plans and estimates for a Zoo in Franklin Park. At this time, the Country Park was almost completed, but the adjunct area was wholly undeveloped. Other parks had been built in the city, detracting from the popularity of

Franklin Park. Attendance had been poor and the Park Board felt that it must act because it was evident that a secondary amusement such as a Zoo was needed to supplement the enjoyment of lovely landscape in order to compete with the seashore and other resort places. With this in mind, it approached Mr. Shurtleff* and asked him to submit a preliminary plan.

A Park Board meeting was called in order to go over the design and Mr. Hornaday, Curator of the Bronx Zoo, was invited to attend as a consultant. The main points from the report of this meeting# are given in subsequent paragraphs.

One of the points was that every yard and den should be arranged with a planted background so that the animals would be seen in a natural setting as this would provide for a picturesque and attractive Zoo.

The Report stated that a labeled Zoo is not desirable because it becomes very monotonous.

It also said that the animals they would select would be local mammals which could live outside all

* See plate following page 18

"Zoological Garden at Franklin Park and an Aquarium at Marine Park"-Preliminary Report of the Board of Commissions of the Department of Parks-City of Boston-1910.

year round. Migrating birds would be placed in a heated house designed by Mr. Austin and this would also serve as the scientific branch of the Zoo.

Mr. Hornaday approved of the plan and approach generally, but he felt that the scope was much too small for a city of Boston's importance. The program, he felt, should be much more progressive and must take into consideration the possibility of future growth. He had found that at the Bronx Zoo, over a period of time, many animals would be given to the Zoo as gifts. Public interest increases and the Zoo becomes more active and expands. Hornaday also suggested that the whole Zoo area be fenced in, thus affording some protection and allowing the charging of a small admission.

Looking at the plan of Franklin Park, Hornaday felt that additional area for the Zoo could be added by eliminating the Greeting. This suggestion was met with great opposition. Shurtleff declared that the Greeting was an integral part of Olmsted's Design, and that it was the culmination point of the whole park system for the City of Boston and could not be destroyed. Later it was agreed that the additional area needed for the Zoo would come from the 16 acres

on the south side of the Greeting which was designated as the Little Folk's Fair and the Music Amphitheater. The Greeting would now serve as the back bone of the Zoo plan. This could be accomplished by changing its character. Instead of a carriage promenade it would now become a series of pedestrian walks. It was felt that in acquiring the additional land the Music Amphitheater and the Herbaceous Garden should remain in order to adhere as much as possible to Olmsted's original design.

Shurtleff incorporated these forementioned ideas in his Preliminary Plan for Franklin Park Zoo, 1910*. Long Crouch Wood, in the plan, was developed for the exhibition of New England fauna in their natural state with small shelters to protect them from the elements. Animals such as bears, lynx, raccoons, foxes, badgers, hedgehogs, squirrels, otter, and beaver were suggested for the space. Each enclosure would be viewed only from the front by the public. The sides and rear were to be planted in a suitable way so that the animals appeared to be in their natural environment with as

* See plate IV following page 18.

little of the cages exposed as possible. The floor of each enclosure was to be built of concrete with a naturalistic surface to insure cleanliness. A bridge would connect this area with the rest of the Zoo.

At the existing Herbaceous Garden now would be built an artificial pool, a bird house and a flying cage.

On the highest plot of ground would be the area for the hooved animals. An antelope and deer house would be built. For outdoor pens there would be a series of radiating enclosures. They would be separated from one another for purposes of servicing, and would have a natural planted background to present a setting and to screen the animals and cages from the park boundaries.

Shurtleff designed the Greeting as a pedestrian concourse flanked by rows of trees, "giving great order to the winding paths."* This walk now fronted the Zoological structures which were to be low in height, nesting among the trees, and only visible from the Greeting. They were not to be monumental in character for then they would be too conspicuous

* "Zoological Garden at Franklin Park and an Aquarium at Marine Park"-Preliminary Report of the Board of Commissions of the Department of Parks, Boston-1910.

throughout the Zoo.

The Little Folk's Fair, Music Court and Refactory were included in the Plan, these being a carry over from Olmsted's Design.*

In addition to these, it was proposed that a boundary fence should be placed around the perimeter. This would prevent cutting across the Zoo and would make it possible to have turnstiles at the entrances in order to record attendance. A small building would be erected here for office administration and headquarters for policing the grounds.

Shurtleff recommended that the first thing to be developed should be Long Crouch Wood because of its low cost of building shelters and procuring animals. He suggested that the trees along the mall be planted at the same time because it would take a long period of time for them to mature.

He directed that the shelters for the animals should be constructed out of wood or stone in the form of caves or built up in the rocks. All outdoor pens should have concrete flooring placed upon piers and shaped like rocks. The piers are needed to give

* See plate I following page 10.

air space for the trees so they won't die. Concrete flooring would make it easier to clean the pens.

The estimated cost of developing the Zoo was \$341,700. This figure included Long Crouch Wood and the Bird House. Shurtleff estimated the cost of developing the Greeting at \$200,000, making the total cost \$541,700.

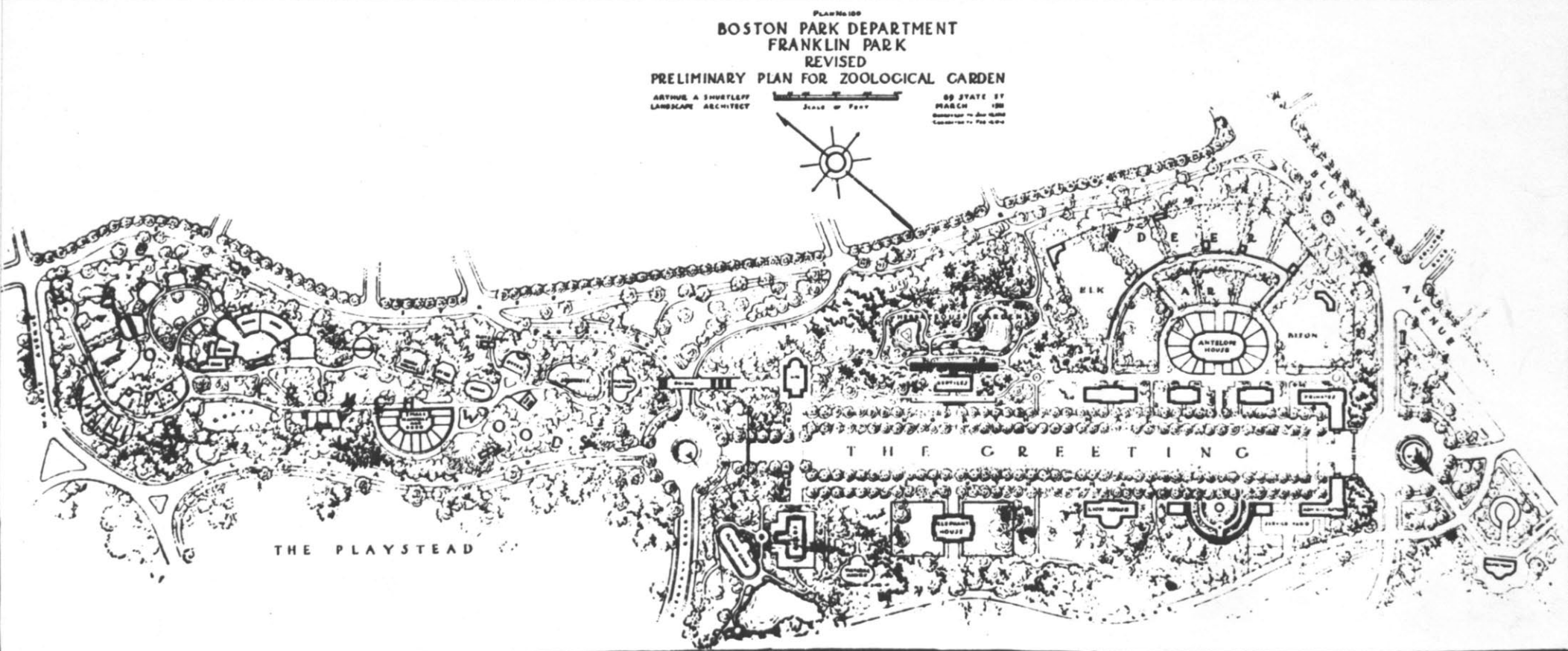
Work progressed very slowly. The Greeting was started, the Refractory built, and some hooved animals were exhibited.

In 1922, under another political regime, the interest in the Zoo was again revived. Shurtleff submitted a Revised Plan for Franklin Park Zoo.* The major changes in the plan were the greater development of Long Crouch Wood, a larger number of animals with more variety were to be exhibited, houses for small mammals and bears were to be built, the bird house, and the flight cage were to be moved from the Herbaceous Garden to the south side of the Greeting. Using this plan, the Bird House, the Flight Cage, and the Lion House were built.

During the depression nothing much was done. In

* See plate V following page 21.

V.
THE PRESENT MASTER
PLAN FOR FRANKLIN
PARK ZOO DESIGNED
BY SHURTLEFF 1923.



1930, the Antelope House, the Bear Dens, and the Elephant House were built, following the Master Plan. All during this period no monkey house was built. The monkeys were housed in the circular Carriage Shed in front of the Refactory. Tragedy struck as fire destroyed this structure in 1938, and the entire exhibit was wiped out.

For the last twenty years Franklin Park has stood at a complete standstill. During this period the City Council allowed only enough money to barely maintain it. The only things that were added were the Classical Pillars, which were part of the Old Boston Custom House and stand as an entrance to the Greeting*, and two statues, which were part of the Old Boston Post Office and stand as terminating sculptures of the Greeting.##

* See photograph plate XIX following page 52.

See photograph plate XX following page 52.

ANALYSIS OF PRESENT DAY ZOOS

ZOO LOCATIONS

Today we find that most Zoos in the United States are located in public parks. One reason for this is that the parks are centrally located. Many park men feel that "There is a growing recognition of the fact that open park space is not enough in itself for recreation."* There are a few, however, located separately, such as the Cincinnati and Detroit Zoos.

It is generally felt that a site must be conveniently located so that it is easily accessible by means of public transportation and highways. It should be centrally located, but not in the center of commercial or industrial areas, for fresh air and sunshine are essential. It has been found that real estate values increase when a Zoo is developed in a certain location because surrounding residents take great pride in their new neighbor.

The nature of the terrain is considered of fundamental importance. Many think the ideal site should include a great amount of irregular ground--hills, rocks, and ponds-- thus eliminating much landscaping

* "New York Central Park Zoo"- Architectural Forum-
July, 1935-pages 32-39

expense. If the land is flat it requires very costly remodeling work, for all the scenery must be constructed. If there is no natural water supply, artificial ponds must be built and city water used.

How large should a Zoo site be? There is no actual answer in acreage. The size of the Zoo should be predicated on the population of the city and the money it feels it can yearly afford to maintain the enterprise. Another factor is the design. If natural habitats are planned for most of the animals more area is required than if a formal approach is used. In a manual * on Zoo design the following areas are listed:

naturalistic Zoo-----150 to 250 acres
 medium sized Zoo----- 50 to 100 acres
 small Zoo----- 20 to 50 acres
 very small Zoo----- 5 to 10 acres.

The important Zoos of the world vary considerably. The Philadelphia Zoo, which has one of the largest animal collections (3300 animals), occupies only 40 acres. This allows the public to view more specimens with a minimum amount of walking. Whipsnade, 30 miles outside London, displays all their animals naturalistically on 500 acres of land. The Detroit Zoo owns 125 acres

* Weir, C. H.--"A Manual of Municipal and Country Parks"--
 A. S. Barnes & Co.--New York, 1928.

but at present uses only 65 of them. Most Zoos feel that an important consideration is land for expansion, for over a period of time the animal collection increases, more interest is created, and the Zoo must have room for expansion or it will become stagnant.

PROCURING ANIMALS

In creating a new Zoo, or securing animals in order to expand a collection, or to replace the ones that die; there are four methods by which animals are acquired- gifts, purchase, birth, or trade.

Animals which are presented to the Zoo as gifts average about 5% of the necessary replacement. In order to spur this method of securing animals, the Detroit Zoo inscribes a bronze plaque with the name of the donor. However, most Zoo experience is that gifts are usually of the very commonplace or "pet" type animal of which they have a sufficient number. Very seldom is a rare animal presented or money given to secure one.

The preferred method is to purchase species from firms engaged in the collecting of animals. Most of these firms are located in the port cities

* "The National Zoological Garden at Washington, D.C. averages a death rate of about 14% a year. This includes many short-lived animals."- Mann, William- "Wild Animals In and Out of the Zoo"-Smithsonian Scientific Series, Volume 6 - 1934 Page 8.

of Europe such as Liverpool, Marseilles, and Hamburg. "These companies are animal emporiums where one can purchase all kinds of beasts and birds, just as one can procure a suit of clothes or a hat from a big store."* The firms secure animals by sending out their own expeditions or they buy them from independent hunters. The price varies from time to time and is usually based on the rarity of the animal, and whether the purchaser desires a single animal or a pair. Price lists are circulated to the various Zoos. Clemson Brown gives an example of such a list which in part reads, "male cheetahs, \$650, monkeys, from \$50 to \$100, polar bears, \$350, African Elephants, single \$5,000, a pair \$12,500, Siberian Camels, \$1,500, orang-utans, \$3,500 and Tapirs from \$400 to \$700.#"

The animals which have been protected by law in order to prevent their extinction today are increasing and are obtained by means of direct negotiation or exchange with foreign game departments or Zoological Parks.

Many Zoos depend on new births to replenish

* Shepstone, Harold J-"Wild Beasts Today"- Sampson Low, Marston & Co. LTD.- London, 1932 page 45.

Brown, C. Emerson - "My Animal Friends"- Doubleday, Doran & Company, Inc. Garden City, New York 1932 page 192.

their stock or to trade with other Zoos for more desirable species. There is nothing more exciting in the Zoo than birth and it also draws large crowds who wish to see the new addition. The only shortcoming of depending on births to replenish the stock is that while some animals breed well in captivity, others do not.

Money to buy animals is usually obtained from part of the money received from admissions, sales, and rentals. Some Zoos will also send out their own expeditions, but this is costly and there is no guarantee as to its success.

R. H. Friedrich, Director of the San Antonio Zoo, in his letter states, "A Director should select birds and animals which are mostly needed, withholding purchases of extremely rare, delicate specimens until last. It is not the amount of money that usually spells the success in creating a better Zoo, but instead the economy in purchasing the selection, keeping in line with the money available and size of display."*

* See Friedrich letter in appendix

FEEDING THE ANIMALS

The Commissary Building is one of the most important structures in the Zoo. It is here where the great variety and quantity of animal food required (about 125 staples) are constantly in stock or cultivation. The food is prepared in bulk in the central kitchen, the headkeeper of each house drawing his daily ration and preparing the individual portions for each animal. Diet sheets are made out each day to insure a balanced diet. The diet must approach as closely as possible that which the animals have been accustomed to in the wilds. The food must be as fresh as any food used for human consumption.

The Philadelphia Zoo, with 3,300 specimens, uses 175,000 pounds of hay, 10,000 pounds of meat, 20,000 pounds of corn, bran, and oats, 5,500 pounds of fish, 400 pounds of salt, 75 barrels of lettuce, 48 dozen oranges, 140 bunches of bananas, 560 quarts of milk, and 500 frogs per month as well as many other items.*

* Brown, C. Emerson - "My Animal Friends"- Doubleday, Doran & Company, Inc.- Garden City, New York-1932
Page 209.

Many of these commissaries have their own butcher shops and even kill the horses to be used for meat. The meat, fresh fruits, vegetables, and fish are kept in two refrigerated rooms--one cooler than the other. In some instances bake shops are also included for the baking of special bread. In some cases hay and grain are stored there having traveled from the loading platform, by means of gravity, down to the metering out bins.

Foodstuffs are bought on the open market by most Zoos, except on rare occasions, when it is cheaper to raise it. All purchases are made through competitive bids. Each week the lowest price for first class produce is accepted. Seconds are permitted in some cases, that is, potatoes may be smaller, fish may have nicks, but all must be fresh.

For the benefit of the visitors, feeding times are posted in most houses for this is a great popular attraction and creates much interest drawing large crowds. Many of the Zoos do not allow the public to feed animals for they have found that people will feed anything to them causing fights, sickness, and sometimes death. Some Zoos encourage controlled feeding by the public. They claim it's impossible to prevent them

from doing it so they package the proper food and place it in vending machines and charge a ten-cent fee for each package. They prevent the gorging of the animals by placing a limited amount in the machine. This practice gives the public a great thrill and allows the park to have an additional income.

The majority of animals eat one meal a day, six days a week. They fast on Sundays in order to remain active. Keepers must take great care in apportioning food rations and in presenting food when more than one animal is in the cage, for sometimes fights occur and one of the animals is destroyed. Recently self-feeding fences have been adopted in many Zoos for the hooved animals. Chopped hay is blown into the mow by means of pneumatic tubes and the hay slides down an inner shell to the feed fence. This does away with much hand labor.

CARING FOR THE ANIMALS

In most large Zoos, each animal house is run by several permanent keepers under the direction of a head keeper or curator.

"The work of the keepers is largely routine, relieved of course by unusual events."* Each morning before the public is admitted, the building is swept and scrubbed, for cleanliness is essential. The keeper in time comes to learn the habits of the animals. He becomes friend, nurse, waiter, and disciplinarian, thus gaining their confidence and making for better and easier care. The head keeper reports each day to the Director on the condition of the animals, etc., then picks up the daily rations. Feed is then proportioned for each animal and it is fed at the scheduled time. The rest of the day is spent in cleaning.

Men with the proper qualifications for keepers are not easy to find. Some are former circus men. The most successful are former country boys who develop a

* Mann, William M.- "Wild Animals In and Out of the Zoo"
Smithsonian Scientific Series, Volume 6-1934 page 283

sympathy for and an understanding of animals through their experience with farm animals and their observations of wild life in the woods and fields. City bred men, particularly those who rely on political influence, seldom last through the three month probationary period prior to regular appointment.

Some men start at the bottom, doing odds and ends, then are assigned to a special house with a certain group of animals. The keeper must be quiet in manner, patient with his animals and must know enough about them to care for them properly as well as to answer the many questions of the public.

If a man is interested and has a way with animals, he may shift from house to house, learning the complete function of the Zoo and its inhabitants. With this experience he can become head keeper or even Director.

HEALTH OF THE ANIMALS

Animals become ill much the same as humans. Colds, indigestion, vitamine deficiency, broken bones, and the like are common. Keepers of each house are trained to watch the creatures under their care and any abnormal action is immediately reported to the Curator so that the animal can be attended to without delay. Great care must be taken in protecting animals from the diseases not only contacted from other animals but from the public as well. "Their health depends on four things; wholesome food, fresh air, sunshine, and sufficient exercise."*

In a few Zoos each house has its own hospital section, but usually the Zoo has a main hospital and laboratory. These hospitals usually include; an operating room, isolation cages and quarantine room, general wards, and such adjacent rooms as X-ray, laboratory, diet kitchen, library, pharmacy, sterilizing, and post-mortum rooms. The operating room is equipped with an operating table, instrument cases, and medical supply shelves.

* Brown, C. Emerson - "My Animal Friends"- Doubleday, Doran & Company, Inc.- Garden City, New York-1932 page 202.

The isolation cages and quarantine room is used for contagious diseases. The general wards are of two types; one for cold climate animals, the other for those of the warm climates. The laboratory is equipped with a refrigerator, microscope, centrifuge, colorimeter, autoclave, etc. There such tests as blood counts, urinalysis and fecal examination take place. The pharmacy is usually a part of the laboratory and the medicines necessary for the treatment of animals are compounded there. The post-mortum room is equipped with an autopsy table and walk-in refrigerator for the larger animals.

Animals are moved about in cages. For examination and treatment special squeeze cages are used. Anesthetics are administered just as if they were humans only the doses are much larger. Carcasses are moved by means of overhead tracks.

All new animals that arrive at the Zoo are thoroughly examined and if necessary quarantined in the hospital before being exhibited. Every animal that dies is examined to determine the cause of death.

These hospitals are under the supervision of experienced veterinarians who watch over health and diet, directs animal pathology, and cooperate with

with medical and zoological specialists in projects of fundamental scientific research often working on problems that have a bearing on human ailments.

An interesting item from a recent artical titled "London's Amazing Zoo" is quoted as follows; "Whipsnade, the vast, nearly fenceless animal park just outside London, was founded as a rest home for animals with nerves jangled from being stared at in Regent's Park. But now it turns out that many of them miss the companionship of the crowds."*

* Meeker, Oden and Olivia - "London's Amazing Zoo"-
Saturday Evening Post - February 23, 1952

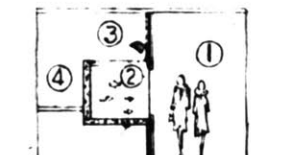
EXHIBITING THE ANIMALS

There are several different ways in which animals are exhibited today. The method is usually derived from the circumstance or the Director's likes and dislikes. The bar and cage system, which was generally used by all zoos, is slowly being replaced by a direct view trench system,* which can be adopted when there is sufficient land. Its greatest advantage is that it allows the public to see the animals in their natural habitat. It appears as if only space separates them from the ferocious beasts of the wild, thus the excitement of visiting the Zoo is greatly intensified.

This feeling is created by building a concrete moat around a man-made island. It can be left empty or partially filled with water. The size of the moat depends on the animal the island is to contain. For instance, to guarantee safety when the lions are placed in this enclosure the moat should be twenty feet deep and twenty-five feet wide. A series of hedges are then planted between it and the public so that the people

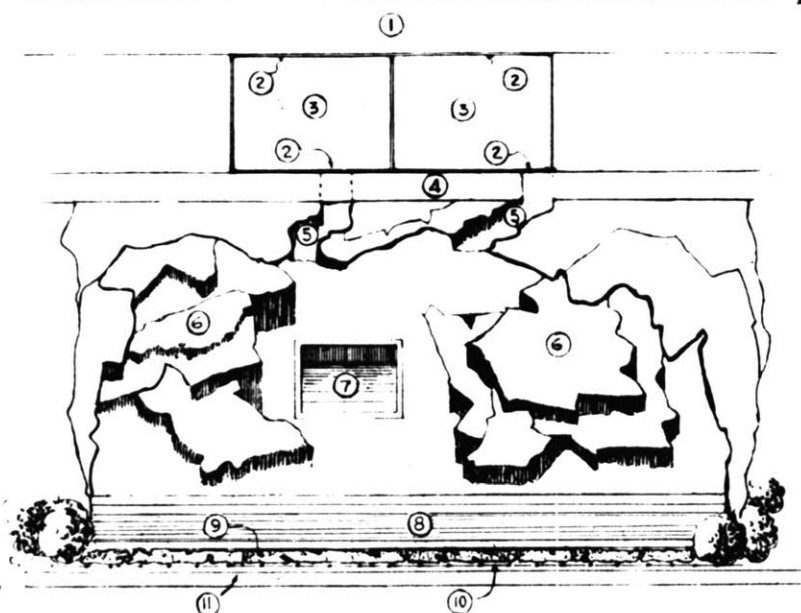
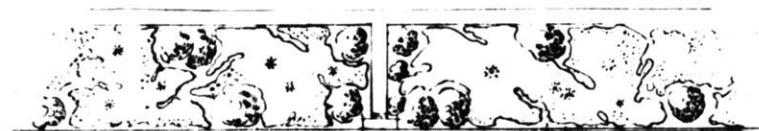
* See plate VI following page 37.

• AQUARIUM MODERNE •
• MODERN AQUARIUM •



• LÉGENDE — LEGEND •

- ① GALERIE DES VISITEURS
VISITORS' GALLERY
- ② AQUARIUM
- ③ LAMPES ÉLECTRIQUES
ELECTRIC LAMPS
- ④ COULOIR DE SERVICE
SERVICE PASSAGE

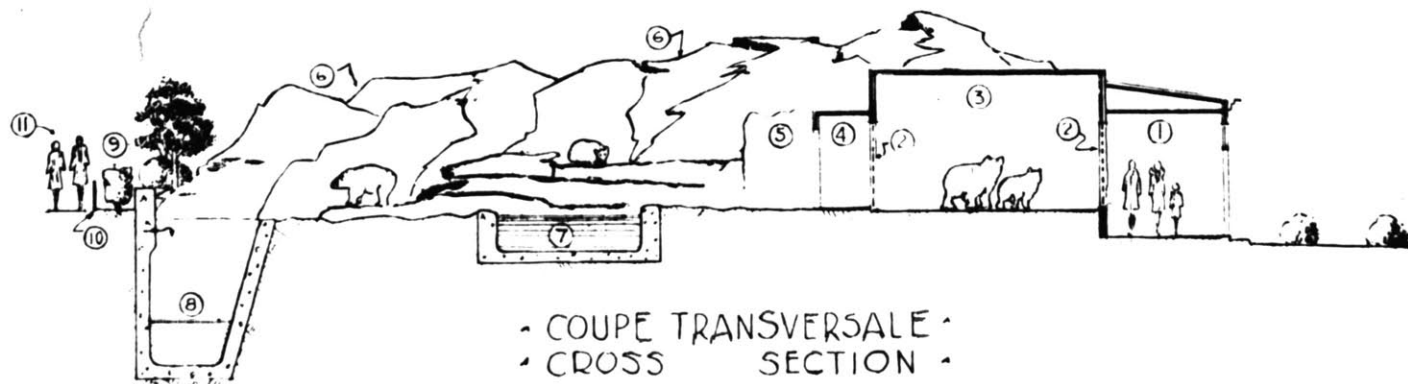


• COUPE HORIZONTALE •
• HORIZONTAL SECTION •

• JARDIN ZOOLOGIQUE MODERNE •
TYPE A VUE DIRECTE — SYSTEME DE TRANCHÉES
• MODERN ZOOLOGICAL GARDEN •
DIRECT VIEW — TRENCH SYSTEM

• LÉGENDE — LEGEND •

- ① PASSAGE INTÉRIEUR POUR LES VISITEURS DURANT L'HIVER
INSIDE PASSAGE FOR VISITORS DURING THE WINTER
- ② GRILLES
METAL FENCES
- ③ CAGE D'HIVER POUR LES ANIMAUX
WINTER CAGE FOR ANIMALS
- ④ COULOIR DE SERVICE
SERVICE PASSAGE
- ⑤ PASSAGE DE LA CAGE VERS L'EXTÉRIEUR
PASSAGE FROM CAGE TO OUTSIDE
- ⑥ ROCHERS ARTIFICIELS OU NATURELS
NATURAL OR ARTIFICIAL ROCKS
- ⑦ BASSIN
POND
- ⑧ FOSSE
TRENCH
- ⑨ HAIE CACHANT LE MUR DE BÉTON
HEDGE CONCEALING CONCRETE WALL
- ⑩ PETITE GRILLE DE FER POUR EMPÊCHER LES VISITEURS D'ATTEINDRE LE FOSSE
IRON RAILING TO EXCLUDE PUBLIC FROM TRENCH
- ⑪ LES VISITEURS N'ONT AUCUN OBSTACLE DEVANT LES YEUX
VISITORS HAVE NOTHING TO OBSTRUCT THEIR VIEW



• COUPE TRANSVERSALE •
• CROSS SECTION •

do not even realize the moat is there. Artificial unscalable rock work completes the barrier, and along with landscaping, gives a very natural setting for the animals.

Artificial rock work is used throughout all natural habitat Zoos. After the enclosures are designed a scale model is prepared. The workmen then carry out this design in steel rods, wire mesh, and two inches of sprayed concrete. Artisans then sculpture the green concrete and tint it to appear like the existing local rocks.

In many cases the artificial rock work conceals the shelters, some of which are open summer and winter. Other structures are concealed as much as possible by shrubs, trees, and bushes. These enclosures should be large enough so that close confinement is lost, but not so large that inspecting it becomes impossible.

The design of barless moats and ditches is more expensive than the conventional design, takes more space, and is harder to keep clean. It is questionable whether it has any greater advantages for the animals, but it does increase public enjoyment.

In many cases the animals can not be exhibited in this manner; buildings must be provided for certain

birds, small mammals and reptiles. Giraffes require heated houses, whereas penguins need air conditioning.

The other approach in use today is the formal one, where the buildings become an independent expression of masses of masonry with practically the only voids being the entrance and exit. The internal design must combine healthy living conditions with good exhibition. Animal enclosures should be easy to clean and service. Dirt catchers like corners and moldings should be eliminated. The enclosures should be separated by solid partitions or two feet of space.

Recently it has been discovered that in 95% of the cases bars can be eliminated and certain types of glass and plastics can be substituted. Many Zoos use an artificial natural setting in these enclosures instead of the finished tile that once was so popular.

There are no standard rules governing the scope of the collection. The number of animals and types of species seem to depend on the Curator and the amount of money the Zoo receives each year. "Science does not speculate when it recognizes at least three million species of animals living in the world today. Some of the first forms are barely distinguishable from the simple plants, and are so small that individuals can

only be seen when magnified. In the progression from these unicellular entities we find the form and function of all animals changed and changing, always becoming more complex in an unattainable reconciliation with their environment. Consequently the greatest limitation in showing even a representative collection of the world's animals is encountered in the impossibility of duplicating environmental conditions satisfactorily. Practically only the land and fresh water vertebrates may be shown. These include mammals, birds, reptiles, amphibians, and fish."*

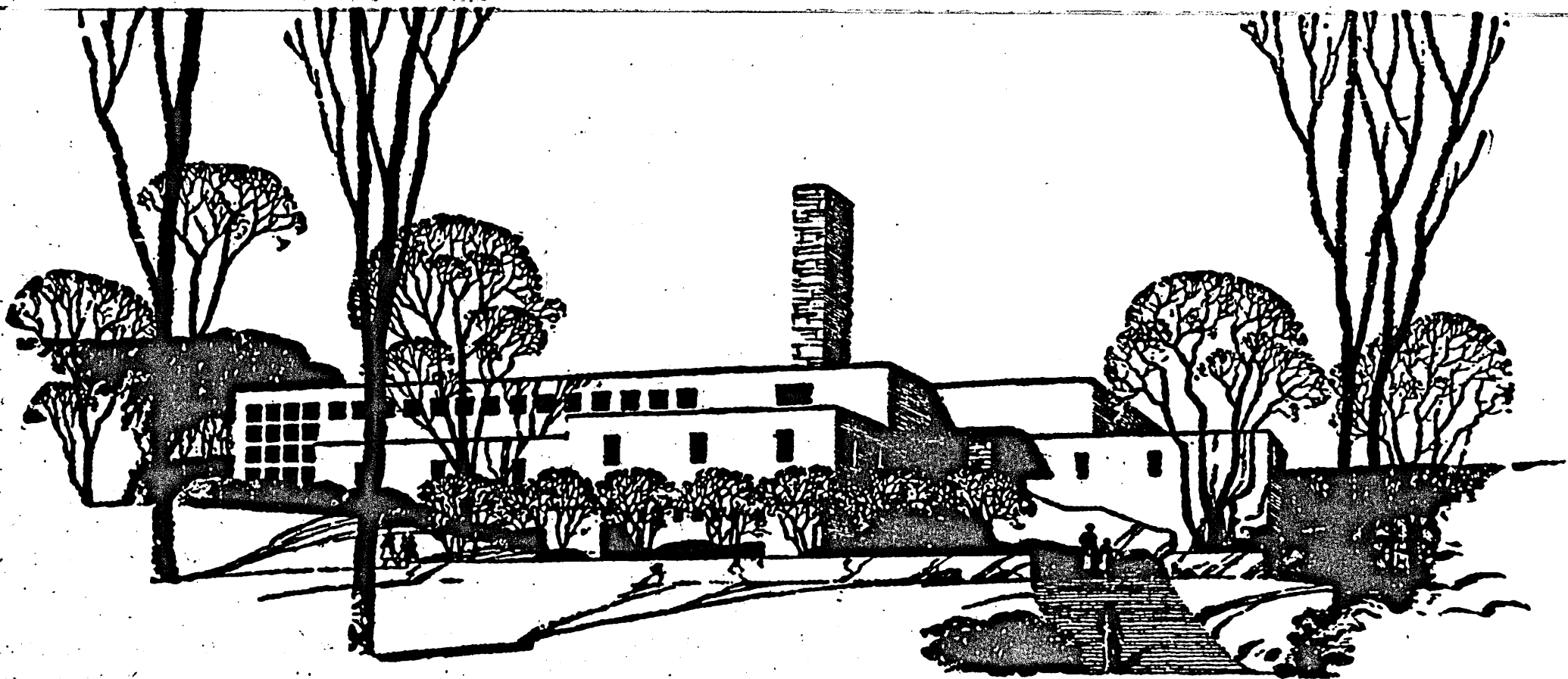
Each Zoo varies in the scope of its collection. The New York Zoological Park exhibits 2600 animals of 1000 species, Detroit Zoo has 2000 animals, Regent's Park in London, 3500, and Chicago Brookfield Zoo, 562 mammals of 166 species, 1351 birds of 538 species, 795 reptiles of 150 species.

Most Zoos, in starting a collection, try to adhere to the most popular animals, but these usually differ in each Zoo. The universal favorites are the monkeys, the lions, the elephants, and the reptiles.

At first most Zoos, in exhibiting the animals,

* Official Guide Book-Chicago Zoological Park Society
Brookfield, Ill.-1952 page 12

VII.
TYPICAL ZOO
BUILDING OF
TODAY



adopted the system of grouping the related forms together, that is all the reptiles were in one area, the lions in another etc. This method simplifies care and feeding considerably. Recently many Zoos have taken an interesting departure from this system and now arrange birds, mammals, and reptiles of the same country together, that is they now show groupings of North America, South America, Africa, Asia, and Australia. Wherever possible the animals are grouped in one enclosure. In other cases, they are separated by a series of hidden moats. The lion, for instance, is shown in close proximity to the plain animals. This is not meant to be a trick of design but merely suggestive of what may be observed in nature.

In the Bronx Zoo more than a score of mammals and birds roam a 4-acre moated enclosure at virtually complete liberty. When forty animals live harmoniously it is truly a wild life triumph. Great care must be taken in order to accomplish this. All pugnacious animals must be weeded out in advance and then close watch on the rest must be kept by the keepers, for as soon as their propensities for fighting become known they must be removed. In the New York Zoological Park, "One zebra that appeared to be perfectly adjusted

to life among the animals, suddenly developed a dislike for a pair of warthogs and persisted in chasing them from one end of the enclosure to the other. The zebra was removed and another substituted. Thereafter all went well. In another case, a male antelope lived amicably with his neighbors until after the birth of a baby to his mate. The next day he celebrated by chasing the cranes and had to be penned up until his high spirits wore off."*

Zoos usually try to tie all the exhibits together with landscaping, using plants, bushes, trees, and rock gardens as their medium.

Zoologists feel that animals under constant scrutiny day in and day out are perfectly content in captivity. The protection that the Zoo affords tends to lengthen their lives. They suffer less against starvation and disease, and in time learn to enjoy their friends and visitors, and even grow a great attachment for their keepers. Each animal has his own personality and some even become great actors who love to show off before the crowds.

* Ditmars, Raymond L. and Crandall, Lee S.-"Guide to the New York Zoological Park"- Clark and Fritts, New York- 1951 page viii

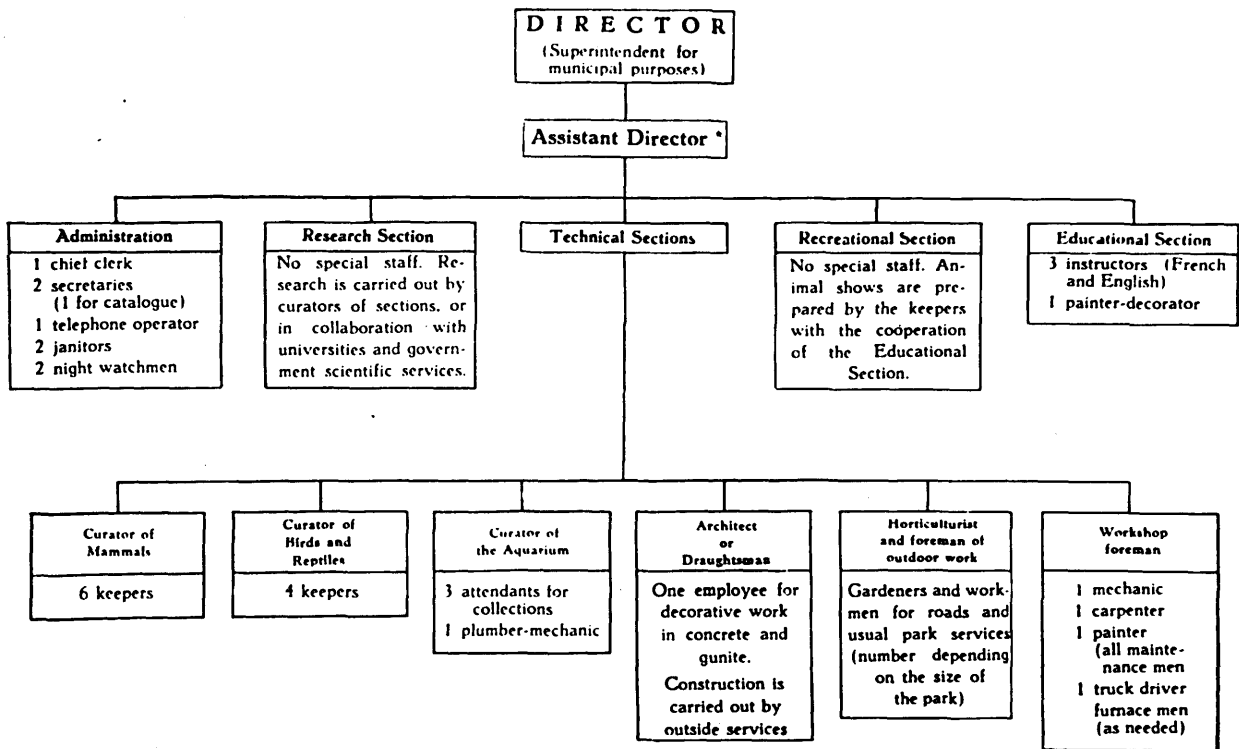
FINANCING AND ADMINISTRATION

The Director's Office in a Zoo is the nerve center of the organization. Each day he receives reports from the Headkeeper and Gardener. All sorts of decisions must be made. This animal isn't eating, that animal must be removed, but how?, the flower bed design must be approved, all these are questions which must be answered. Then an inspection of the whole area must be made. Other problems might involve a student writing a thesis or an artist wishing to draw certain animals. Too, letters must be answered, bulletins written, as well as a meeting of the board to be attended. These, as well as many other administration duties must be carried out each day.

"The Philadelphia Zoo requires approximately seventy employees including medical, office staff, and extra laborers. There are twenty keepers, one head-keeper, three ticket sellers, seven special watchmen, a head gardener, and from six to sixteen laborers and janitors, depending largely on the season."*

* Brown, C. Emerson-"My Animal Friends"-Doubleday, Doran & Company, Inc. Garden City, New York-1932
page 226

NORMAL PERSONNEL OF A ZOOLOGICAL GARDEN FOR MONTREAL



* The assistant director could also be curator of a section.

VIII. TYPICAL PERSONNEL CHART

The New York Zoological Park has a staff of 250, Detroit Zoo employs 150 in the summer and 85 in the winter. In a few cases Zoos hire an architect or retain one on a yearly fee. In London's Regent's Park Zoo they hire an architectural staff, but this practice is very rare.

A Zoo does not just happen. Some are operated by private individuals, some by municipalities, others by Zoological Societies, and still others operate under state or municipal charter. R. H. Friedrich shares a view held by many when he states in his letter, "To achieve success the Zoo must be completely removed from politics."*

The New York Zoological Park is jointly run by a Zoological Society and the city, and the Jardin des Plantes in Paris is under the control of museum authorities. Hagenbeck's Tierpark, Stellingen-Hamburg, Germany belongs to a private company. The Zoological Gardens at Buenos Aires are municipally supported. Cincinnati, and many other Zoos are run by Zoological Societies. The National Zoo in Washington D. C. is run and managed by the Smithsonian Institute.

* See Friedrich letter in appendix.

The source of income depends on the character of the organization. National Zoological Park in Washington D.C. is financed entirely by national funds, admission there being free. New York Zoological Park, directed by a Zoological Society-a scientific corporation, is financed largely out of municipal funds. The remainder comes from gifts, dues, and admission charges. The London Zoo receives no aid from public funds for current expenses. All improvements and scientific work imposed on it by the terms of the Royal Charter depend wholly on the gate money paid by the general public and the subscriptions from the fellows of the Society.

Other sources of income are derived from entrance fees, children's zoos, farm displays, eating concessions, automatic animal food vending machines, postcards, publications, and gifts. In Detroit, a miniature railroad shows a profit. Other Zoos have animal rides. In Chicago, shells, coral, and other pins and brooches representing marine animals are sold. In Cincinnati a bond issue of \$500,000 was allocated to the Zoo for improvements and additions to the Zoo which was to be repaid by the Zoological Society from operating expenses over a period of

twenty-five years.

A properly run Zoo can hardly operate for less than \$300,000 a year, but some have a budget of close to \$1,000,000 a year. Detroit's annual budget is \$340,000. Of this amount \$107,000 is allocated to the zoological department for staff care of animals, cages, service, roads and so forth. The rest goes for construction and general park service. The New York Zoo has a budget of \$506,000. Here the Zoological Society pays the technical staff and procures the animals, as well as contributing materially to improvements. The city provides general maintainance, food for the animals and a base salary for employees.

The administrating body of the Zoo tries to make it a living textbook of Zoology. It maintains an educational service with a staff to assist school children in their visits to the Zoo by explaining the animals and answering questions.

Zoological Societies assist greatly in the promotion of Zoology through exhibits, exploration, and publications. The New York Zoological Society is open to all persons no matter where they live. The membership is \$15 annually. Contributing members pay \$25, life membership costs \$300.

The Society works in close cooperation with the New York City schools, has its own library, and publishes a scientific journal, "Zoologica", and a magazine, "Animal Kingdom"

The London Zoological Society membership is open to anyone over eighteen years old who has been proposed and seconded by two other Fellows. The admission fee is 5 pounds and the annual subscription fee is 3 pounds. This allows personal admission to the park along with two companions, a right to use the library, and a right to attend the eight scientific meetings held each year where papers are read and discussed, photographs shown, and films exhibited. The Society publishes two scientific journals, has its own library, restaurant, and special areas. It conducts scientific work and encourages artist's studies of animals. The Society is governed by a council elected by the Fellows. The patron is Her Majesty, The Queen.

The Cincinnati Zoological Society, in order to create interest and income, holds a "Zoo Day". A summer opera is held at the open air pavillion for a six week period in the summer. Home and Pure Food Shows are also held. All other Zoological Societies are variations on this pattern.

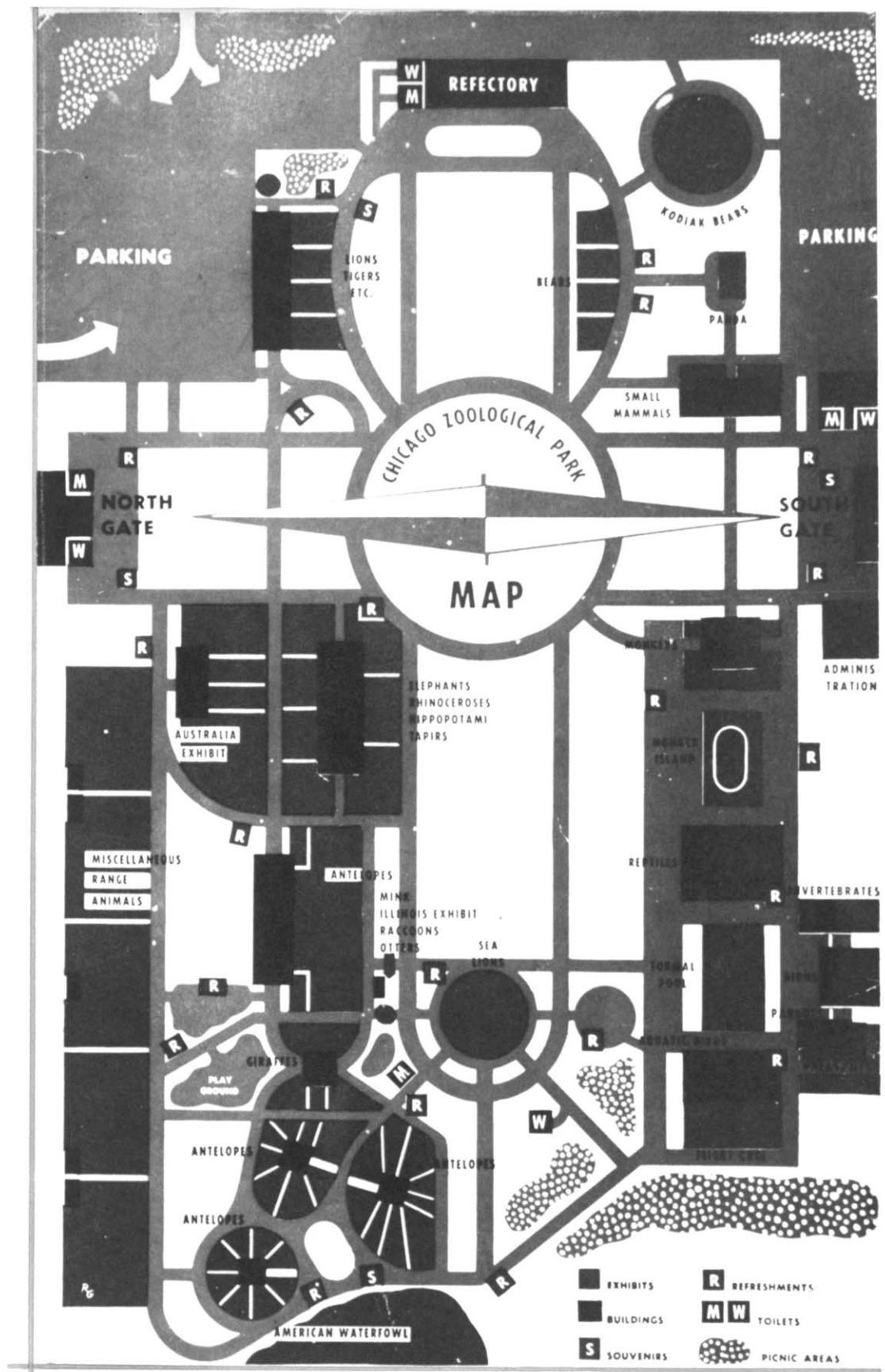
Admissions to Zoos averages about 25 cents for adults and 15 cents for children. Some Zoos only charge admission on week-ends and holidays to adults with children being admitted free. The greatest attendance occurs during the late spring, summer and early fall, with Sundays being the peak days.

The total attendance at Washington National Zoological Park for 1950-51 was 3,460,000. Broken down in order to show attendance by month, the figures read as follows: *

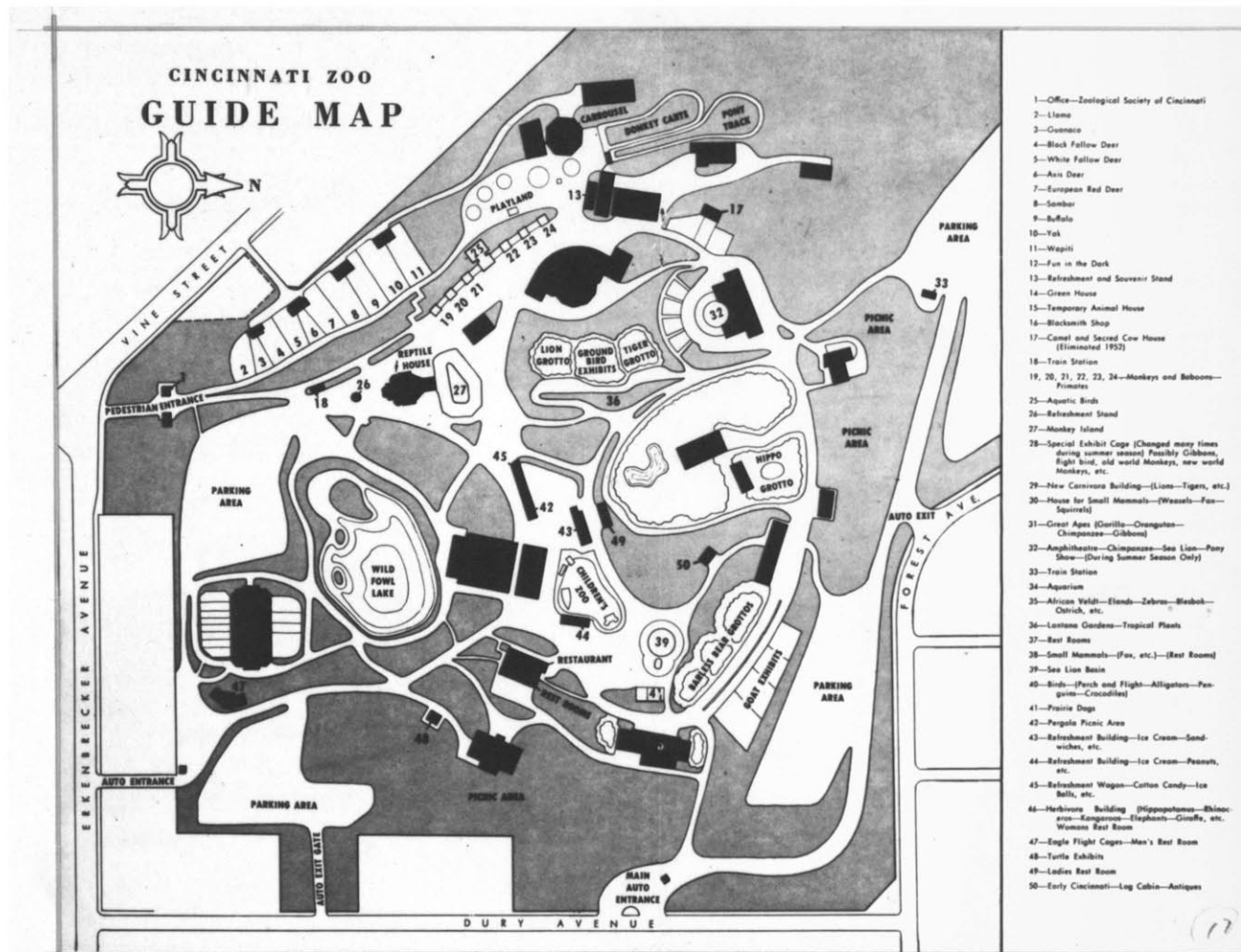
July, 1950	-----	452,500
August "	-----	470,000
September	-----	290,700
October	-----	296,900
November	-----	156,600
December	-----	64,000
January, 1951	-----	112,200
February	-----	193,600
March	-----	263,200
April	-----	391,300
May	-----	418,500
June	-----	350,000

The New York Zoological Park has a yearly average attendance of 2,500,000, with as many as 50,000 on holidays.

* "Report On The National Zoological Park"- 1951
Smithsonian Institution, Washington D.C. page 105



IX. EXAMPLE OF FORMAL APPROACH TO ZOO EXHIBITION

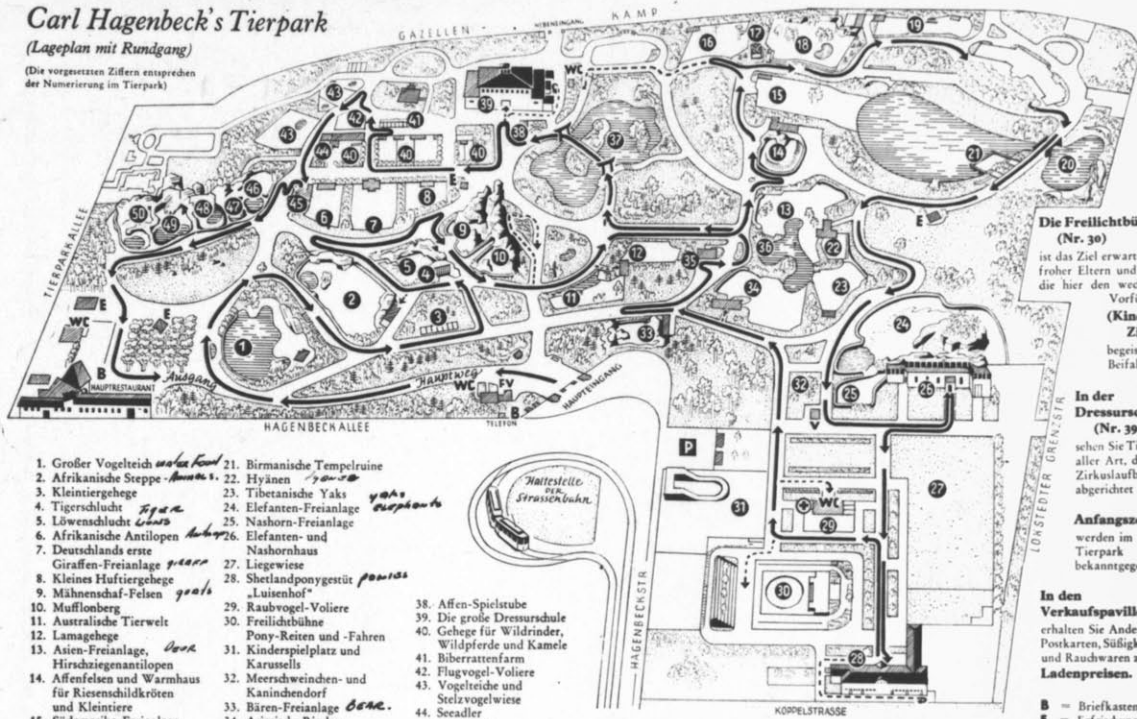


X. TYPICAL ZOO PLAN

Carl Hagenbeck's Tierpark

(Lageplan mit Rundgang)

(Die vorgesetzten Ziffern entsprechen der Numerierung im Tierpark)



1. Großer Vogelteich *afrika Nord*
2. Afrikanische Steppe *Australien*
3. Kleintiergehege
4. Tigerschlucht *Tiger*
5. Löwenschlucht *Löwe*
6. Afrikanische Antilopen *Antilope*
7. Deutschlands erste Giraffen-Freianlage *giraffe*
8. Kleines Huftiergehege
9. Mähnschaf-Felsen *goats*
10. Mufflonberg
11. Australische Tierwelt
12. Lamagehege
13. Asien-Freianlage *Ober*
14. Hirschziegenantilopen
15. Affenfelsen und Warmhaus für Riesenschildkröten und Kleintiere
16. Südamerika-Freianlage
17. Damwild-Freigehege
18. Pumas
19. Bison-Freigehege *Bison*
20. Hirsdgehege
21. Urwelttiere
22. Birmanische Tempelruine
23. Hyänen *Hyäne*
24. Tibetanische Yaks *yaks*
25. Elefanten-Freianlage *elephant*
26. Nashorn-Freianlage
27. Elefanten- und Nashornhaus
28. Liegewiese
29. Shetlandponygestüt *ponies*
30. „Luisenhof“
31. Raubvogel-Voliere
32. Freilichtbühne
33. Gehege für Wildrinder, Wildpferde und Kamele
34. Biberrattenfarm
35. Flugvogel-Voliere
36. Vögelteiche und Stelzvogelwiese
37. Affen-Spielrube
38. Die große Dressurschule
39. Gehege für Wildrinder, Wildpferde und Kamele
40. Biberrattenfarm
41. Flugvogel-Voliere
42. Vögelteiche und Stelzvogelwiese
43. Secadler
44. Vogelhaus
45. Pinguin-Beden *Penguin*
46. Walrosse *walrus*
47. Sechshunde, Rentiere *Seehund*
48. Eisbären, Seelöwen *Seelöwe*
49. Japanische Insel und Flamingowiese
50. Wuschbären

Zeichenerklärung:
 — Hauptweg durch den Tierpark. Die Numerierung der einzelnen Anlagen im Tierpark erfolgt durch Nummernschilder.
 z. B.:
 1 — nach Nr. 3, oder
 3 — von Nr. 3 nach Nr. 4

Die Freilichtbühne (Nr. 30)
 ist das Ziel erwartungsfroher Eltern und Kinder, die hier den wechselnden Vorführungen (Kinder-Zirkus) begeistert Beifall spenden

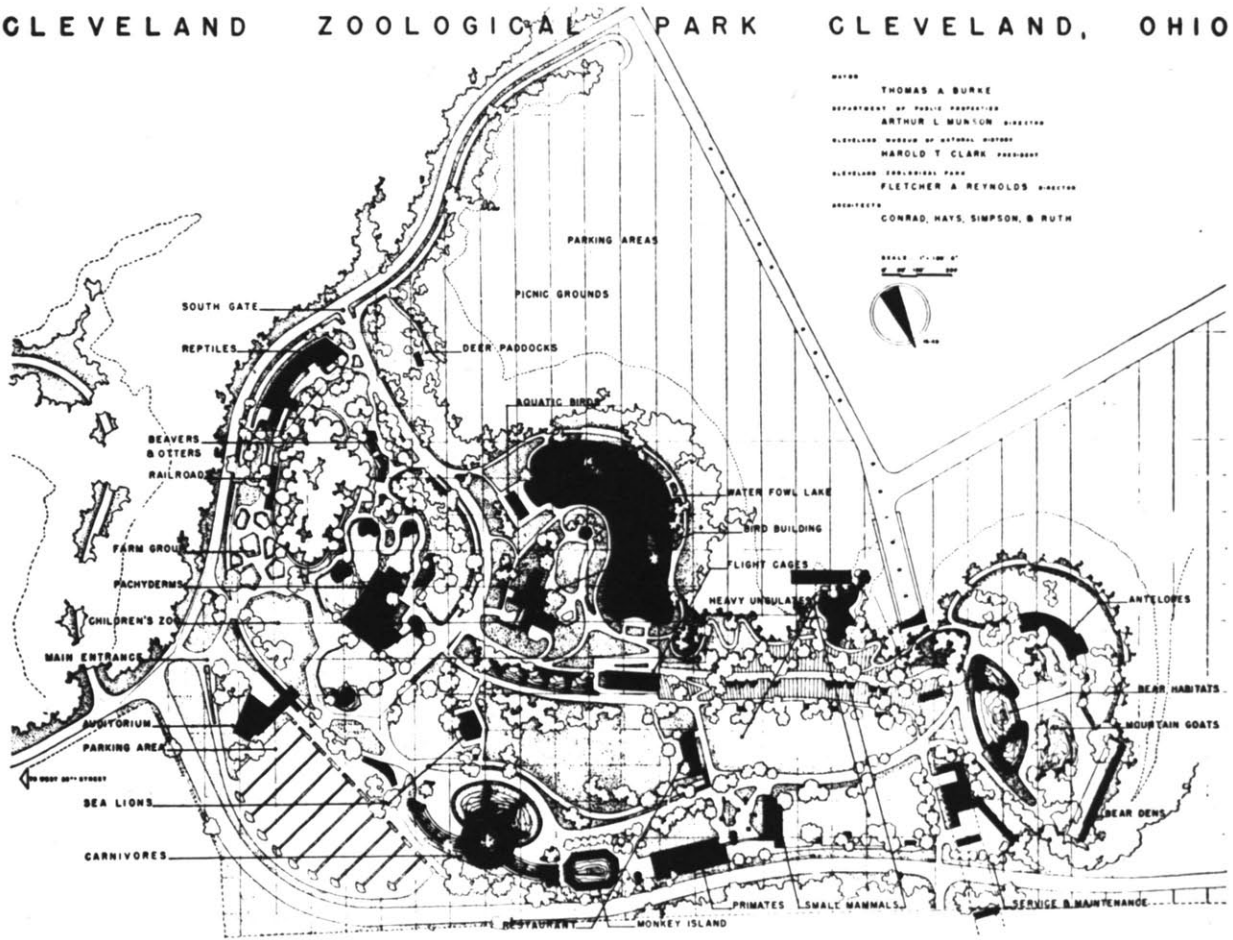
In der Dressurschule (Nr. 39)
 sehen Sie Tiergruppen aller Art, die für ihre Zirkusaufbahn abgerichtet werden.
Anfangszeiten
 werden im Tierpark bekanntgegeben.

In den Verkaufspavillons
 erhalten Sie Andenken, Postkarten, Süßigkeiten und Rauchwaren zu **Ladenpreisen**.

B = Briefkasten
E = Erfrischungen
F = Fundbüro
P = Parkplatz
V = Verkaufspavillon
WC = Toiletten
U = Unfallstation

XI. CARL HAGENBECK'S TIERPARK IS CONSIDERED ONE OF THE BEST ZOOS IN EUROPE

CLEVELAND ZOOLOGICAL PARK CLEVELAND, OHIO



XIII THE LATEST IN NEW ZOO PLANS

ANALYSIS OF FRANKLIN PARK ZOO

THE SITE

Franklin Park is located just three miles from the Boston Commons. As its position in West Roxbury locates it in the center of Boston Proper, the eighty-acre Zoo, which is part of Franklin Park, is ideally situated.

Public transportation (buses and trolleys) from any part of town stops directly in front of the Park.* Main routes for private transportation are close by allowing convenient and direct circulation to and from the area.#

The topography of the site is exciting and varied.° The highest point has an elevation of 170 ft. The lowest point is 120 ft. This 50 ft. variation is well distributed.

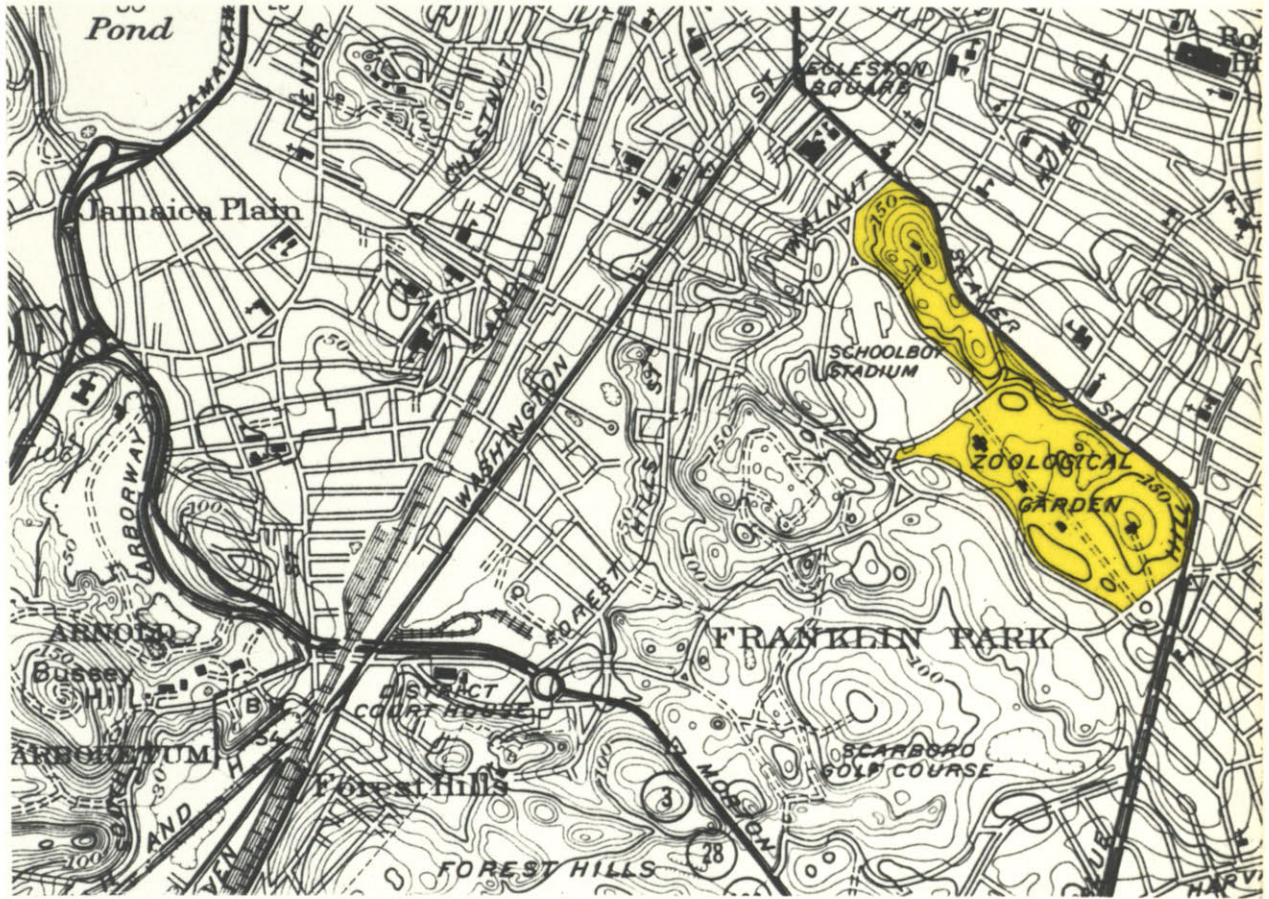
Some interesting stratas of rock appear every now and then, and trees such as maple and oak are spotted throughout the area.

* See plate XVI following page 50.

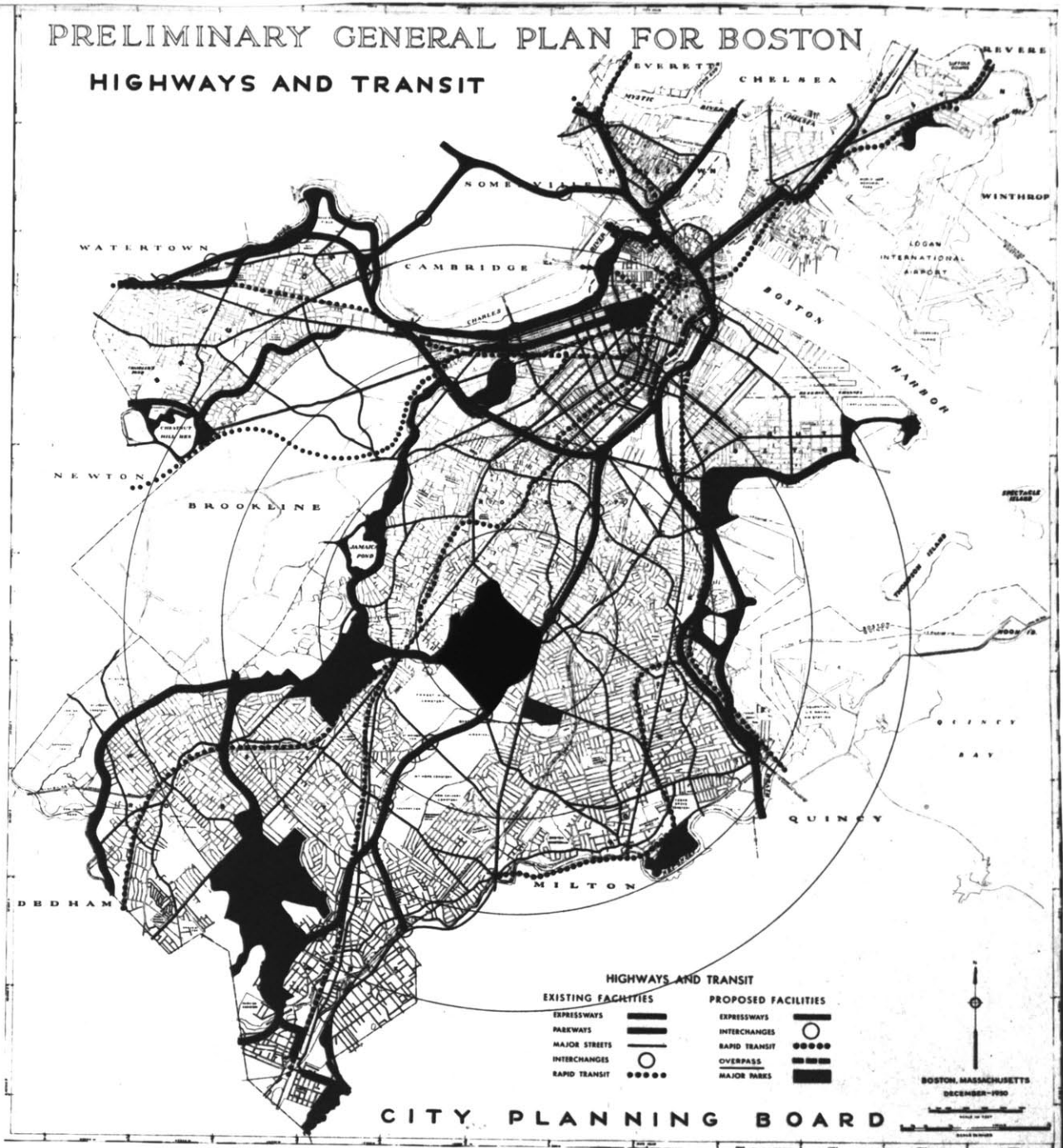
See plate XV Following page 50

° See plate XIV following page 50.

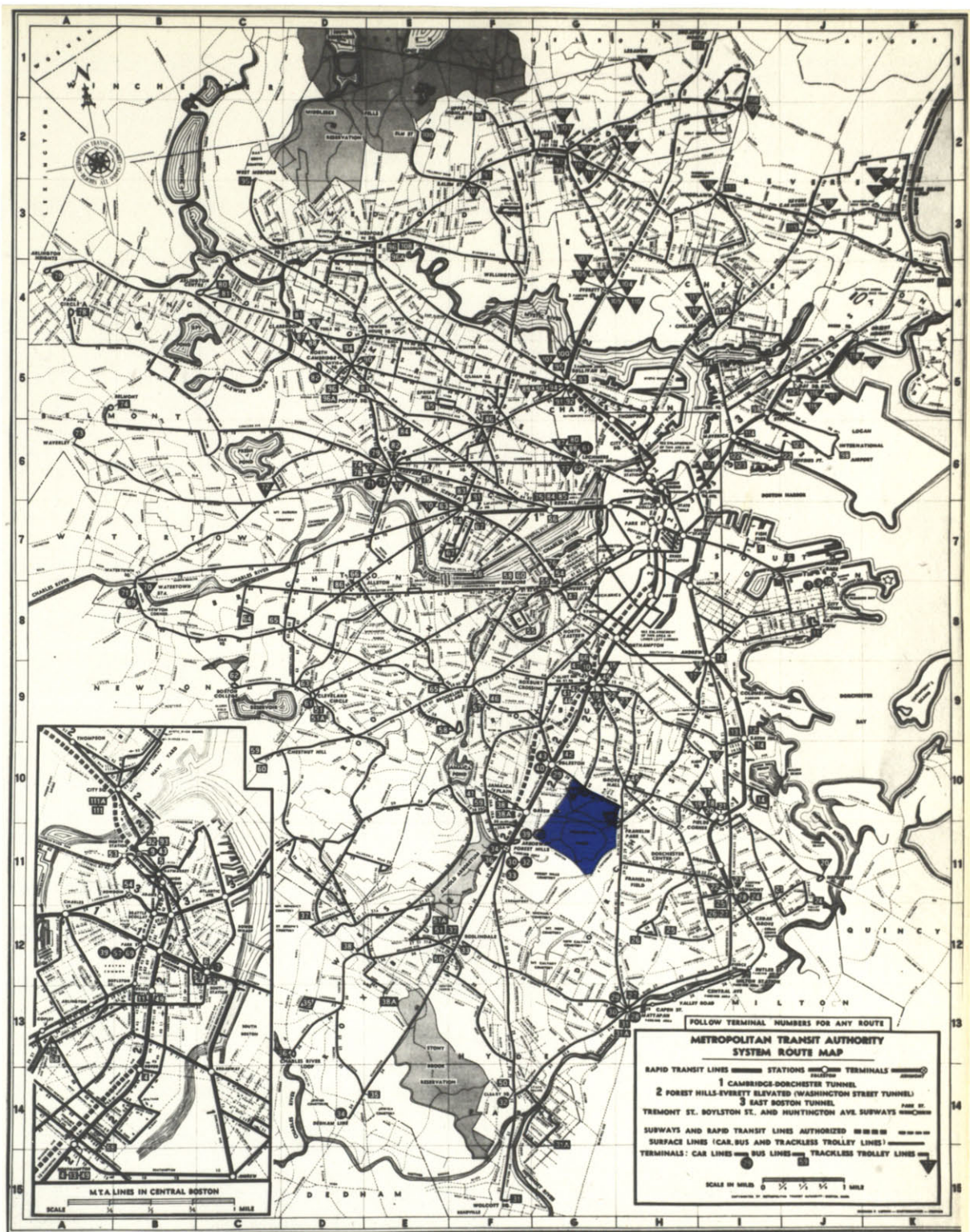
At present, the greatest disadvantage of the site is its lack of natural water which now must be supplied artificially.



XIV. 10' CONTOUR INTERVAL MAP OF FRANKLIN PARK.



XV. MEANS OF ACCESS BY PRIVATE TRANSPORTATION
TO FRANKLIN PARK ZOO.



XVI. MEANS OF ACCESS BY PUBLIC TRANSPORTATION TO
FRANKLIN PARK ZOO.

THE PLAN

Franklin Park Zoo as it is today* is only a partial fulfilment of Shurtleff's Revised Zoo Plan of 1923. This Master Plan, which the Park Board hopes to complete, is poorly conceived and very inadequate in light of today's progressive thinking. The Design is a compromise in order to maintain Olmsted's grandiose Greeting. The formal Plan with straight walks, rows of trees and buildings is uninspiring and very monotonous.

Long Crouch Wood, which was designated as a small mammal area, is only developed to the point that the bear dens were built and they are one-half mile away from the nearest exhibit, the bird house.

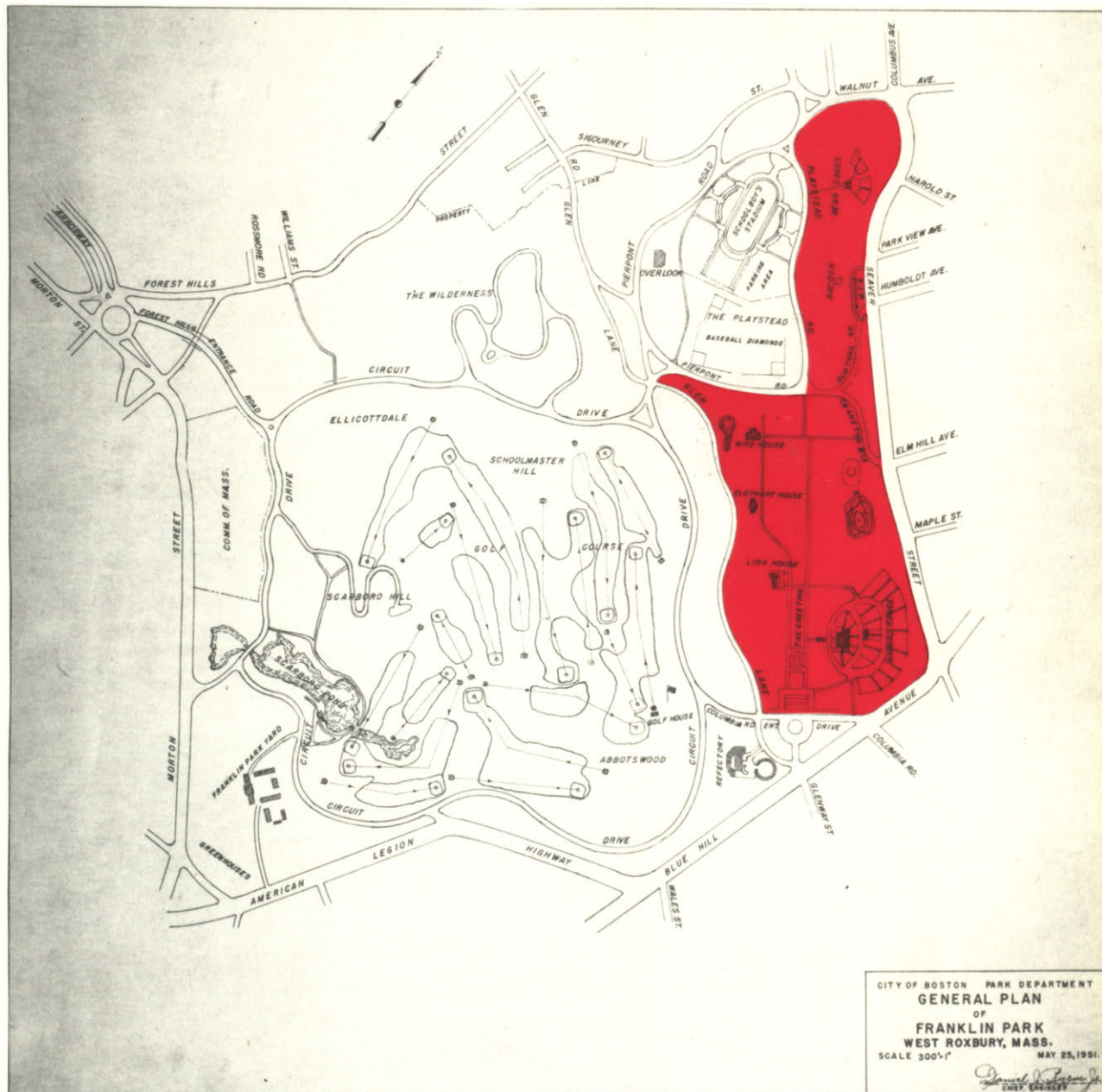
The long, tiring circulation pattern is most inconvenient in that the Plan doesn't take into consideration the distance which it forces the young and old alike to walk.

There are no provisions for off the street parking, or for a planned picnic area. As a consequence, when the estimated 5,000 persons visit the Zoo on Sundays

* See plate XVII following page 52.

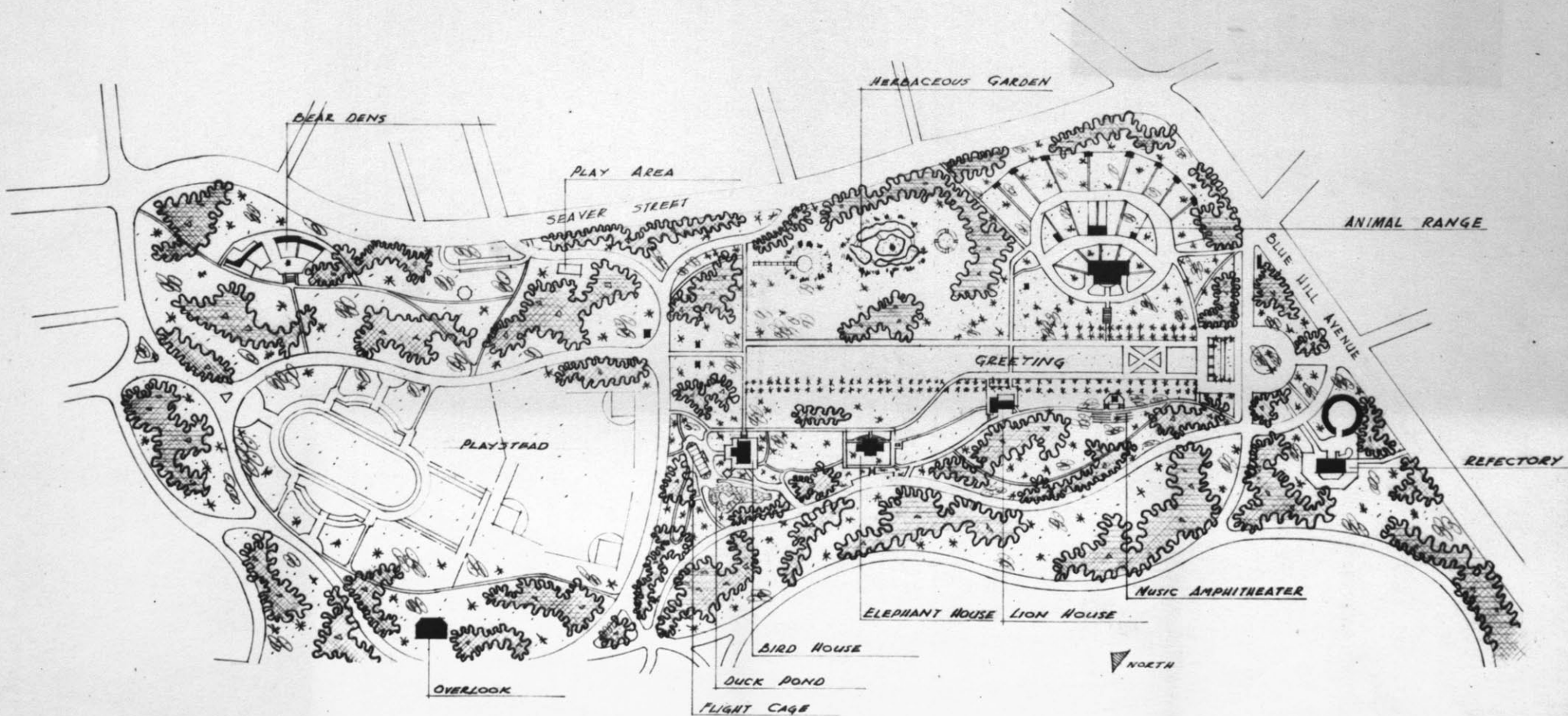
the adjoining streets are lined with 500 cars, and the families who come to spend the day lunch anywhere on the grounds, generally leaving them cluttered with refuse.

The impression that has been created is one of a park with a few animals being exhibited, and the spirit of the Zoo has been lost.



XVII. EXISTING PLAN OF FRANKLIN PARK AS OF 1951.

XVIII.
FRANKLIN
PARK ZOO
AS IT IS
TODAY...
1952



FRANKLIN • PARK • ZOO • 1952

scale 300' =

THE ECLECTIC FORM AT THE
EASTERN END OF GREETING
DEPICTING THE ENTRANCE TO
FRANKLIN PARK ZOO.



THE PUBLIC ENTRANCE TO
FRANKLIN PARK ZOO AT THE
EAST END OF THE GREETING.



LOOKING WEST DOWN THE
GREETING, CONCEIVED BY
OLMSTED TO BE USED AS A
CARRIAGE PROMENADE, IT
WAS MAINTAINED AS A VERY
FORMAL MONOTONOUS MALL.





ONE OF THE PROMENADES ON
THE NORTH AND SOUTH SIDES
OF THE GREETING WHICH
FRONTS A ROW OF ANIMAL
BUILDINGS.



THE MASSIVE UNRELATED
TERMINATING SCULPTURES
AT THE WEST END OF THE
GREETING.

THE EXHIBITION

The meager collection of animals is poorly selected and even lacks a good representation of New England fauna. The animals in the collection include 33 species comprising about 100 animals. There are 57 species of birds. The deer species are well represented with about 30 on exhibition. There are 9 bears of different species, 6 buffalo, 4 donkeys, 3 elephants, 3 gnus, 3 rams, 3 pigs, 3 lamas, 2 lions, 2 kangaroos, 2 camels, and 2 zebras and one or two of the following: leopards, tigers, jaguars, goats, and horses.

All animals are exhibited in barred cages or behind high wire fences. No attempt has been made to display the animals in their natural habitat although this was specified in the original conception. The hooved animal range with its wire enclosed area spaced one right after the other is uninviting. The animals appear old, sick and poorly kept, and many enclosed areas are empty.

At present the monkeys are exhibited in the old cages in the Bird House. On Sunday large groups of

people gather to watch the fun. This inadequate condition completely congests the area preventing the people from passing through or even seeing the exhibit.

The birds which are kept in continuous cages are unidentified and not well presented. The water fowl in the artificial pond which is enclosed by wire fence are very insignificant. The Herbaceous Garden is not well kept and contains many unidentified floral displays.

After visiting this exhibit, one feels very let-down and disappointed.

BANDSTAND FOR THE MUSIC
AMPHITHEATER WHICH WAS
INCORPORATED IN OLMSTED'S
ORIGINAL PARK PLAN.



THE LION HOUSE WITH ITS
BARRED CAGES EXPOSED TO
THE NORTH.



TYPICAL EATING STANDS
WHICH ARE SPOTTED AT
DIFFERENT LOCATIONS.





THE HIGH WIRE ENCLOSED
WATER-FOWL POND WITH
ITS UGLY SHELTERS.



HERBACEOUS GARDEN ONLY
PARTIALLY MAINTAINED
WITH UNIDENTIFIED OTHER
FLORAL DISPLAYS.

THE STRUCTURES

The architecture of Franklin Park Zoo is a mixture of several styles. Japanese influence is seen in the Bird House; there is a Byzantine entrance to the Antelope House; and Classical columns serve as the Main Gate. The nondescript style of the remaining structures completes the picture.

Only the Flight Cage and the Bear Dens are worth while as a functional expression of Zoo architecture. These are well conceived and transmit a very pleasant environment.

The Lion House is an interesting structure but the plan is not well thought out as the outdoor cages face the north thus limiting their period of use to the warm sunny days of summer.

The exterior of all the buildings are in a neglected condition presenting an unsightly picture of deterioration. The shelters which have been built for the wild fowl at the Duck Pond and for the ungulates in the hooved animal area are wood structures which

serve their purpose but visually mar the exhibit rather than adding to it.

It was stated in the original Plan* that the structures should be inconspicuous, playing a minor role to the main purpose of exhibiting the animals. This is definitely not the condition. Today they are a strong expression and the first things one sees when walking through the Zoo for practically all the exhibits are inside.

* "General Plan of Franklin Park"-Annual report for the year 1891- Boston City Documents, 1892, volume 2 number 26-Boston 1892.

THE LONG TIRING STAIRWAY
LEADING UP TO ANTELOPE
HOUSE.



THE BACK OF THE ANTELOPE
HOUSE WHICH IS A RUN DOWN
UNINVITING PLACE OF EXHIBIT.



THE RANGE WITH ITS HIGH
FENCES AND CONTINUAL PENS
OFFER A POOR VISUAL AND
CIRCULATION SOLUTION.





THE ELEPHANT HOUSE IS
INADEQUATE FOR THE
HOUSING AND SERVICING
OF PACHYDERMS.



THE UNNATURAL OUTDOOR
HABITAT AROUND THE
ELEPHANT HOUSE.

THE BIRD HOUSE, ALSO USED
AS MONKEY HOUSE, SERVICE
BUILDING AND LIVING SPACE
FOR HEAD KEEPER.



MONKEYS ARE KEPT IN THE
OLD BIRD CAGES WITH VERY
LITTLE AREA ALLOTTED FOR
PUBLIC VIEWING.



INTERIOR OF THE BIRD HOUSE
WITH ITS UNSATISFACTORY
MASS EXHIBIT OF UNKNOWN
BIRDS IN WIRE CAGES.



THE FLIGHT CAGE IS THE
ONLY WELL ARTICULATED
STRUCTURE.



THE VERY PLEASANT BEAR
DENS IN LONG CROUCH
WOOD, BUT LOCATED A
HALF MILE FROM OTHER
EXHIBITS.



TYPICAL OF UNMAINTAINED
AREAS THROUGHOUT THE ZOO.



SERVICING

The food which is supplied to the Zoo is bought in the open market from the lowest bidder each week. This must be fresh and must bear the approval of Government inspectors. The foods such as fruits and vegetables are stored in a refrigerator unit in the basement of the Bird House. The Keepers of each house draw daily rations which are then delivered by truck over the pedestrian walks. Dry foods such as hay and oats are delivered directly to the animal buildings where they are stored.

Each building is heated separately by oil using a two-pipe hot water system. In the Bird House which requires temperature control the year around, air conditioning is added.

Cleaning of cages is done each day. Manure is removed and the enclosures are thoroughly washed down. The manure is then hauled away and sold as fertilizer.

Sufficient water is supplied through 8" mains and fire hydrants are spotted throughout the area.

Electricity is supplied by the Boston Edison Co.

with both 110 and 220 volts being used.

Considering the conditions and the limited amount of money available, the servicing appears to be efficiently and well done.

FINANCING AND ADMINISTRATION

Franklin Park Zoo is operated by the Park Board of Boston and financed through the city budget, both of which are subject to change with each new administration. It is the victim of fluctuating political tides. At present it is inadequately financed on \$130,000 a year, most of which is derived from the Parkman fund, with a small supplementary appropriation from the city. It also has a minor income from concession stands, donations, and gifts, but there is no admission charge, Zoological Society, or any other income aid.

There is no professional curator or director. The Zoo is under the direction of a Headkeeper. Administration and correspondence are handled by the Park Commission through one man who is appointed responsible. Franklin Park Zoo has a staff made up of the following: one Headkeeper, one assistant Headkeeper, nineteen other keepers, two gardeners, and four laborers.

Each animal house is run as an individual unit.

Keepers are assigned to these buildings and usually remain over a period of years, learning the habits of each animal and being responsible for their care.

THE SOLUTION

PROGRAM

In order for Franklin Park Zoo to become a credit to the city of Boston, offering an educational, a recreational, and a cultural stimulus for children and adults, the following program must be adopted.

1. A site plan that redesigns the space, expressing its function, and guides future development and expansion of the Zoo.
2. A Primate House that contains monkeys, gorillas, and gibbons, and an amphitheater, where the public may linger and watch the continual performance, as well as planned shows.
3. A Reptile House with indoor and outdoor realistic planted habitat for snakes, lizards, turtles, crocodiles, and amphibians.
4. A Mammal House and outside area where New England fauna may be exhibited.
5. A Bird House that will replace the present inadequate structure.
6. An administration building that includes auditorium, library, and office space.

7. A redevelopment of the Elephant House, so that it becomes an exhibition center for pachyderms.
8. A redevelopment of the Lion House so that the exhibit of carnivorous animals becomes an exciting experience.
9. A redesign of the service building so that it would include cold and dry storage, and hospital facilities with private range.
10. A redesign of the Heavy Ungulate Range so that the animals appear free and in their natural habitat.
11. To relocate the Water Fowl Pond so that it becomes a feature of the plan. Part of this pond to be used for the display of otters, beavers, and seals.
12. The Bear Dens to be relocated, abandoning Long Crouch Wood, in order to make them more convenient.
13. Develop a Children's Zoo which would be a picturesque representation of Fairy Tales.
14. Develop a Farm Group of domestic animals which urban children rarely see.
15. Develop a picnic and recreation area where family groups can spend the day.

16. Develop a parking area within the Zoo to accommodate approximately 1000 cars.
17. Locate the eating stands, rest rooms and covered shelters conveniently.
18. Redevelop the Restaurant so that it can be used jointly by the Zoo and Franklin Park.

16. Develop a parking area within the Zoo to accommodate approximately 1000 cars.
17. Locate the eating stands, rest rooms and covered shelters conveniently.
18. Redevelop the Restaurant so that it can be used jointly by the Zoo and Franklin Park.

CONCEPTS

The only way to carry out the program is to adhere to the following premises.

1. Franklin Park Zoo, to be a credit to the city of Boston, must be redeveloped to express its function, and must progress within its financial limits.
2. The redesign must be based on a realistic approach so that it may be carried out over a period of years, yet not look or feel incomplete at any particular stage.
3. To complete Shurtleff's formal plan would be erroneous. The design must grow from within and must never become academic.
4. The existing buildings have no spiritual connection with a Zoo, and eventually only the structural forms should remain as a basis for redevelopment.
5. The animal enclosures should be designed on a \$200,000 increment so that it is possible to

use the "White Fund."

6. The exhibits should be an integrated grouping of animals full of surprises, suspense, and excitement.
7. Animals should be exhibited in their natural habitat wherever possible using a minimum of barred or fenced enclosures.
8. The design must be based on the fact that the animal is the actor, the enclosure is the stage, and the public is the audience.
9. The architectural forms, the open spaces, the textures, and the colors must articulate their functions.
10. The flow of people must be controlled so that the freeness of the animals can be dramatized.
11. The circulation should be planned so that it is natural and convenient to see the whole Zoo or only a part of it without retracing steps.
12. Servicing should be isolated from the public wherever possible, but special arrangements should be made so that people could witness its behind the scene functioning, if they so desired.
13. Incorporate the best safety measures to protect both the public from the animals and the animals from the public.

14. The animals and enclosures should appear neat, clean, and well attended because of the psychological effect on the public.
15. The educational value of the Zoo to both children and adults should be emphasized, as well as recreational benefits and scientific research possibilities. Also it must be considered that there are groups and individuals who study living creatures from both professional and esthetic viewpoints.
16. To assist the Zoo financially, the policy of having concessions may be adopted. Also there should be a small admission charge.
17. Franklin Park Zoo must be completely divorced from politics and must be directed by a Zoological Society in order to gain its rightful place among the respected Zoos of the country.

THE SITE

The question arises that if Franklin Park Zoo is so deplorable, and since the land is a narrow strip which lacks water, wouldn't it be best to look for another site? It is not believed that this is advisable for it would be a great expense to buy land and start anew. It is believed that the existing faults can be overcome through comprehensive planning.

The important thing is to centralize the Zoo. This means abandoning Long Crouch Wood and relocating the Bear Dens. This will concentrate the area to between Blue Hill Avenue and the Playstead, Seaver Street and Circuit Drive, creating a 75-acre plot of ground which is sufficient for a Zoo for the City of Boston.

To improve the site, ponds and artificial lakes can be built. The water can be supplied by the city at the rate of 300 gallons a minute without taxing the system. Also, artificial rockwork and additional landscaping can be done to create a panorama of natural habitat.

THE PLAN

When one faces the problem at Franklin Park realistically, it is realized that the existing plan cannot be disregarded, for this Zoo is in no position financially to completely rebuild in a short period of time. The only way the redesign can be accomplished is to have the plan so handled that small segments can be built each year. They must be so organized that they function with the existing plan and never feel like a disorganized addition.

By adopting this approach some walks can be maintained, but the new plan should never be sacrificed just in order to do this. One walk which can remain is the formal approach now used which is located to the south of the Greeting. This would become an orientation point to which visitors could locate their relative position at any time, and will form the backbone of the circulation pattern.

Trees, Planting, Exhibitions, and Structures will make the main circulation pattern vary in direction and spacial relationship. In this way variations in

rigid and plastic space are realized in three dimensions achieving a visual interest and an emotional stimulus.

The secondary circulation walks are of smaller scale and are so designed that the visitor can skip certain exhibits or see only the animals in which he is interested.

The exhibits are placed according to the existing contour or the popularity and excitement they create, but they must be so located that they will not disrupt the normal circulation pattern.

EXHIBITING THE COLLECTION

The excitement of seeing wild animals in their jungle haunts is maintained by displaying the species in their natural habitat. The method of doing this is varied depending on what is to be exhibited. Some animals are grouped according to the country or area from which they come. Others are grouped according to their similarity in form.

The collection is displayed in such a manner that the public can study most of the animals in three dimensions. Indoor exhibits are shown within the structure as glass enclosed forms which modulate the space. The visitor can walk completely around the animal or study it from different levels. In this way the sterility of continuous cages is avoided.

Outdoor exhibits appear as if only space separates the viewer from the animals through the use of moated enclosures. Here too one can study the animals from different vantage points. A slowly-moving suspended cage will carry visitors over the outdoor exhibits.



Eland (*Taurotragus oryx*) SOUTH AFRICA. Elands are the largest of the antelope family. Full grown males have the appearance of massive cattle. Both sexes have horns.



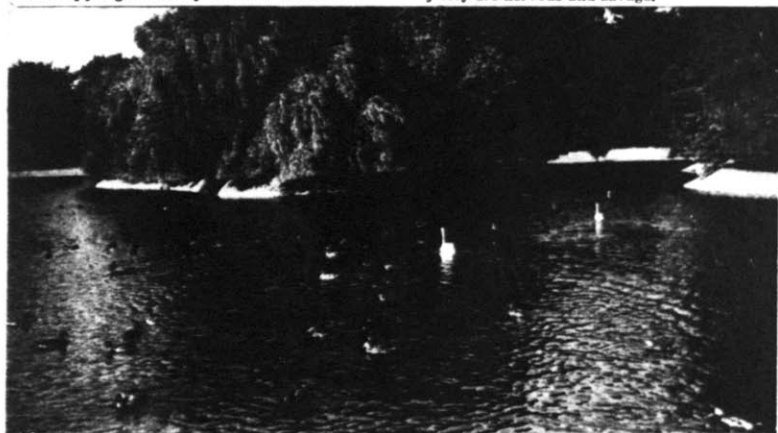
Red-necked Ostrich (*Struthio c. camelus*) NORTH AFRICA. Largest of living birds, reaching 8 feet in height and a weight of 300 pounds.



Lechwe Waterbuck (*Onotragus lechwe*) SOUTH-EASTERN AFRICA. As their name indicates, the waterbucks prefer to live in moist, swampy regions. Only the male has horns.



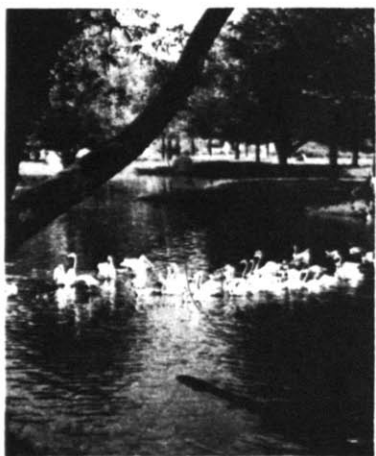
Grant's Zebra (*Equus burchelli granti*) BRITISH EAST AFRICA. While some captive zebras are as docile as the domestic horse, the majority are nervous and savage.



Island Lake. On this placid lake at the Detroit Zoological Park are representative waterbirds native to North America. The game birds of this group are familiar to many of us.

XVI.

NATURAL HABITAT ENVIRONMENT



Tropical Birds. In these pictures are some of the strange types of birds which come from tropical regions. Some are very colorful and others are noted for their gracefulness.

The thrill of being suspended thirty feet above the lions has a great potential in Zoo design.

The scope of these exhibits does not have to be large but rather based on the popularity of the animal, and a well represented grouping. This can be done by developing an African Veldt for the mixed animals of that country and a New England Exhibit for local fauna, along with other popular exhibits such as ungulates, primates, carnivorous animals, pachyderms, reptiles, small mammals and birds.

Special interest groups will also be added. A farm section will be developed where one can watch the milking of the cows, the small calf suckling, and the pig with its litter of young along with the many other fascinating things found on the farm. Another group would be the Children's Zoo. Here the many small tots who visit the zoo can see and play with their fairy-tale friends.

In these ways a visual environment is achieved which will hold public interest and offer great educational benefits.

NEW STRUCTURES

Each building is planned so that it can be completed by using the "White Fund", which allocates \$200,000 each year for the improvement of Boston.

By keeping the area small and using inexpensive material in a neat and clean manner, this is possible. The buildings are based on a simple structural system in which the variation depends on the different spaces that are created and the color themes which are expressed.

By giving the structure complete freedom in three dimensions and using solid panels which can be removed and stored in the summer, a variation of rigid and plastic space is created. Space and nature are allowed to flow uninterruptly through the structure and still servicing for the animals, protection, and easy means of circulation for the public are maintained. Glass panels will also be used, but these would remain fixed in order to reduce breakage.

In handling the structures in this manner the feeling of being inside a masonry enclosure is eliminated, and the natural environment which should exist remains.

THE OLD STRUCTURES

As unsightly as these structures are, they must remain for the time being so that other parts of the Zoo can be developed, for it is more important to add to the Zoo to increase public interest than to spend money remodeling these old structures at this time.

At a later date these units will be remodeled. The structure will remain and serve as a basis for the design. Additional area will be added and animals will be exhibited with the same feeling that is created in the new structures through placing glass enclosures to break up the space, by movable panels and color.

THE CODE

Zoo buildings are not classified in "Building Code for the City of Boston". In a conversation with Thomas O'Brien, member of the Building Commission, he felt that zoo buildings would probably be classified as amusement or park structures, but that the Plans would have to be submitted to the Board for approval. In case they were rejected they could be sent to the Board of Appeals.

The code*states that amusement park or similar structures of open or skeleton frame type may be constructed of any type of construction and are not limited in height and area. If the structures are of the enclosed type, they are limited as to type of construction, height and area of unit as follows:

Fire-proof-----not limited

Semi fire-proof-----15,000 sq. ft.

Heavy timber or masonry--10,000 sq. ft.

Light wood and masonry---10,000 sq. ft.

* "Building Code of the City of Boston"- Part 12
pages 77-78- City of Boston, 1944

Metal frame----- 5,000 sq. ft.

Wooden frame----- 5,000 sq. ft.

Amusement park structures of the enclosed type used as places of assembly shall be classified as Class "B". If the floor area is protected by automatic sprinklers the areas can be increased 50%.

THE SERVICING

The existing service area increases in scope as the Zoo develops. This area eventually becomes the service core, with the Bird House remaining as the commissary until a new one is built. When it is, the new Commissary will prepare the food for most of the animals, bake bread, and store all food except bulk such as hay and oats which will be kept in the individual houses.

In this same area a Hospital will be built for diagnosis and care of sick animals and it will be equipped with operating room, isolation ward, and autopsy facilities. In conjunction with this structure a three acre plot of ground will be maintained as a private range for those animals whose health necessitates their isolation from public view.

The service area will also have service parking facilities, a garage, and maintenance shops.

Heating for the structures will be carried out by individual units for each house.

In order to deliver food and remove waste, the following methods are employed; for the hooved animals Glen Road becomes a private service drive, for the carnivorous animals and African Veldt a private drive is run off the parking area, other small exhibits are serviced over pedestrian walks either early in the morning or late at night.

PARKING FACILITIES

To overcome the lack of parking facilities, a 7-acre plot of ground is designated for this purpose within the Zoo which will allow an average of 300 sq. ft. per car. Assuming 145 cars to the acre, a total of about 1000 cars could be parked here.

This area which is now used by the hooved animals is located so that from the main approach of Blue Hill Avenue and Seaver Street it is easy to reach and is near the entrance of the Zoo so that all visitors are properly orientated.

Due to the existing traffic conditions on Blue Hill Avenue, Mr. Garver, Head of Traffic and Street Design for the City of Boston, thought that the entrance should be located midway in the block to relieve congestion at the intersection of Columbia Road and Blue Hill Avenue, and that the exit should be off Seaver Street. There is some question as to whether or not it would be more efficient to place the entrance at the intersection mentioned above where lights could control

the traffic and where the topography allows an easier entrance.

PICNIC AREA AND CONCESSIONS

A planned picnic area is essential in order for people to spend the day at the Zoo. This area is located close to the entrance and the parking facilities to eliminate long walks with lunch baskets, etc. The area will include tables, fire pits, swings, and play area. The existing Antelope House will become a covered shelter for this area.

The concession stands will be spotted throughout the Zoo. A small light structure will be built with protecting awning and umbrellaed tables surrounding it so the people can sit down and enjoy refreshments.

The existing refectory should be remodeled so that dinners can be served. It has been found that restaurants within a Zoo seldom make money all year 'round. This restaurant is ideally located for it is out of the Zoo proper but still in Franklin Park. With this arrangement it can be used not only by the people in the Zoo through a system of pass-out checks, but by the general public as well.

The rest areas and covered shelters must be spotted throughout the plan to give people a place to sit down or, in case of rain, to run for cover.

FINANCING AND ADMINISTRATION

Franklin Park Zoo can be made successful by placing it in the hands of a Zoological Society which would have the interest in creating a better Zoo for Boston utmost in its mind. This would remove its administration from political folly.

The City of Boston should still assist in financing it but additional income would be derived from dues from the members of the Society, from the admission fee, and many small items such as concessions, animal food vending machines, rides, post-cards and guide books. This money, which should total about \$300,000, would be used for maintaining the Zoo, caring for the animals, and the buying of new species.

In order to build the new proposed structures the George White Fund should be used. This money cannot be obtained without the approval of the City Council but it doesn't seem too far fetched for White's will states that the \$250,000 interest each year may be used for public works, such as a Zoo, Aquarium, or Auditorium, so long as the structure is completely constructed with

this money without any outside financial assistance.

For the Zoo to function properly an administration building should be built at the entrance of the Zoo where the Director or Curator (who would be appointed by the Society) and his office staff would be housed along with Society meeting rooms, library, and assembly hall.

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for Stanley Park Vancouver, B. C.

Architectural Record-June 1951.

Fleischmann Memorial Aquarium, designed
by Strauss for the Cincinnati Zoo.

Journal of the American Institute of Architects-
January, 1952.

Bird Building designed by Conrad Hays
Simpson and Ruth for Cleveland Zoo.

Architectural Forum-July, 1949

Monkey House designed by Klein for
Herman Park in Texas.

Architectural Review-April, 1948

Plan for Rotterdam Zoo by Van-Ravesteyn.

Building Code for the City of Boston.

APPENDIX

For a Better Zoo

With an efficient Boston Mayor and an improved board for the George Robert White Fund, this city is in an excellent position to do something about its zoo. Few will dispute that a lot is needed and that a good zoo, such as they have in New York and St. Louis, will do wonders for any city.

The zoo is one of the three chief subjects of aid specifically mentioned in the White Fund. In days gone by, Mayors, who have been pretty influential in the disbursement of this fund, have, we fear, been reluctant to start big projects that didn't yield a quick political reward. The result has been a lot of little projects.

Now we suggest that the Fund, the city and possibly a group of influential citizens, banding together into a zoological society, swing around and make a real go of the Franklin Park Zoo.

Prior to Mayor Hynes' tenure the zoo was shamefully neglected. Now we have, at least, some kind of a plan. Yet the last building, the antelope house, was constructed in 1930, 22 years ago. Ten years before that, in 1920, the lions' house was built.

There is no monkey house—and who ever heard of a zoo without a monkey house? There isn't a snake in the whole place, not even a garter snake—a deplorable fact for the morbid thousands who trek to a zoo to watch evil, slithering, prone on its belly. Boston's zoo was even unable to provide accommodations for Ansell's hippopotamus, Putzi, that wound up in Brooklyn.

Few properly run and equipped zoos function on less than \$400,000 a year. Some get \$1,000,000. Yet our zoo runs or limps on about \$130,000, most of which is provided from the Parkman Fund, with small supplementary appropriations from the city.

Yet the White Fund yields over \$250,000 a year. A slightly larger city appropriation, boosted by an assist from a zoological society of private citizens might give us a first class zoological garden. Indeed, such a group to coordinate managerially the aquarium, the museum of science and the zoo might, not only bring dramatic scientific education to all of New England, but save enormous sums of money.

We should also investigate the virtues of paid admissions to defray operating costs. Such a policy should await something worth paying for. But the experience of the Boston Museum of Science, since it moved into its new quarters last March, is very revealing. Before moving into the new building, the museum had 43,000 visitors a year for free. In the new building in 11 months at a top price of 30 cents—15 cents for children—there have been more than 200,000 visitors.

So we say it is time that Boston did something to provide a truly metropolitan zoo. The means are at hand, and the end result would be recreation for our citizens and a powerful item of promotion for the whole city and state.

Let's Go on That Zoo

The people of Boston want a top flight zoo; they don't think they have one now; the means exist for giving the city a zoo second to none.



NO GIRAFFES

We called the Boston zoo to see how our animal roster compares. No Copperheads, no Cottonmouths, no

Cobras, no Pythons—indeed no snakes. No Yak. No Giraffe. No Black Leopard. No Hyena. No Coyote. No Antelope. No Mongoose, no Wombat, no Anteater, no Two-Toed Sloth—in fact no small animal house.

Park Commissioner Frank Kelley has got the ball rolling by a formal request for use of the George White Fund. It is extraordinary that this fund has never been used before, since a zoo is specifically singled out in the White will.

Indeed, some of the backed-up earnings of this fund could find no better use than for a monkey house, a small animal house and other zoo needs. An excellent magnet for the zoo might be an exhibit of New England animals and birds—a true innovation.



NO HYENAS

But aid for the zoo should not be exhausted with the White fund. There still remains city appropriations from the Parkman fund and other sources, the use of moderate paid admissions and financial assistance from a zoological society. Such a society could provide centralized management for the zoo, the aquarium and the science museum to give New England dramatic scientific education. Today there are no television programs that have higher ratings than those originating in some of the nation's better zoos. This fact alone shows the commanding interest in animals. A good zoo, combined with our present vastly improved science museum, and an improved aquarium could become a tourist attraction of the first order. Above all, such a triple attraction—zoo, science museum and aquarium—would be a focal point for municipal recreation, education and pride in a city that is throwing off decay and adopting progress.

Those are the inescapable conclusions from a flood of letters to this newspaper and from other facts.

Before us we have a handsome brochure published by the St. Louis Zoo. It is a who's who of the animal kingdom. Not only does this publication show numerous species absent from our zoo, but it shows pictures of settings, each one native to the animals, of circuses, of throngs of people, of modern spacious bird, monkey and small animal houses.



NO SNAKES



NO PENGUINS

Use of White Fund for Zoo Possible if Trustees Agree

By DICK MILLER

It might be possible to use the George Robert White Fund for the improvement of the Franklin Park Zoo if the Fund trustees approved and if certain legal tests were met.

THIS IS THE OPINION of James J. McCarthy, manager of the Fund, whose offices are in Boston's City Hall.

"Whether the White Fund can be used for the zoo is, first of all, up to the trustees," McCarthy says. "And then there is the question of whether the building of the zoo would or would not be contrary to the 'joint undertaking' clause in the White will."

THIS CLAUSE, in article 14 of the will, goes as follows: "I also direct that no part of said income shall be mingled with other funds or applied in joint undertakings; but that each work established under this gift shall be separate and distinct. . . ."

However, several experts, including Bradford Washburn, director of the Museum of Science, have expressed the opinion that new construction at the zoo would meet this "joint undertakings" test easily.

THE POINT IS that one medium-sized building could be put up at a time, and it could be constructed entirely with White funds. Each building could be considered as a separate unit, distinct, if need be, from the rest of the zoo.

McCarthy also reveals that in 1947 serious consideration was given towards using the White Fund for the zoo:

"In 1947 there was around \$2,700,000 of the Fund available for use, and there was a proposal to have the Fund buy what there was of the zoo from the city, and then modernize it, repair it and add to its facilities."

At that time the zoo idea was not ruled out as being contrary to the provisions of the will.

However, the money was eventually used for other purposes."

At that time, it is interesting to note, a court test was made on whether it would be according to the provisions of the will to

charge admission to the zoo, since, according to the will, the current expense of care and maintenance of all White projects "shall be borne by the city."

It was ruled that it was legal to charge admission fees to the zoo, provided such fees did not total more than the upkeep cost of the buildings. In other words, no profit could be made from admissions.

It is likely that a similar ruling would be made if the Traveler's current plan for using the White Fund to modernize the zoo were put into effect. McCarthy, of course, expresses no opinion on this.

He points out, however, that "if \$1,000,000 were to be spent on the zoo it would take several years to accumulate that amount in the Fund."

The income from the fund totals something over \$200,000 a year. At present there is no such reserve as the \$2,700,000 that existed in 1947, so that any improvements to the zoo would have to be done one building at a time.

Park Commr. Frank R. Kelley has already written the trustees of the Fund, asking that they give "serious consideration" to using part of it on the zoo.

The Traveler is endorsing a four-point plan to make the Franklin Park Zoo worthy of the City of Boston: Use of the White Fund; use of the Parkman Fund; small admission charges, if necessary; and the formation of a zoological society to encourage gifts to the zoo.



SAN ANTONIO ZOO & AQUARIUM

SPONSORED BY THE SAN ANTONIO ZOOLOGICAL SOCIETY INC.

3919 NORTH ST. MARYS

SAN ANTONIO 2, TEXAS

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March 13, 1952

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Mr. Don P. Schlegel
124 A Glenville Avenue
Allston 34, Massachusetts

Dear Don:

Nothing would please me better than to attempt answering your letter in which you would like to know the complete functioning of the Zoo. However, time won't permit because to tell you everything would require many pages, so I hope you will pardon my submitting instead the contents of a letter written to a committee who is beginning to organize a new zoo and wanted to go about it.

From this you should get the fundamental facts and I am also enclosing one of our Zoo Guides with our compliments, and I do hope from the letter and the booklet you can derive at some the information you seek. If you really need the information as to the prices of various animals, birds, reptiles, and fish, and the feeding of these specimens, you would almost have to visit the Zoo, and I dare say you go to New York occasionally.

If so, you could call at the office and I am sure they would give you some attendant who could give you first hand information right from the specimens themselves, and you could make notes as you go along and really get something constructive. Of course the prices are not established prices, such as butter, eggs, and beans, and instead one dealer, or one zoo will charge more than another, all depending upon the circumstances; although here again the attendant would give you a general idea of some of the outstanding specimens.

From here is copy of letter referred to: "To answer your letter in detail concerning the organization of a Zoological Society and the operation of our Zoo would be indeed entirely too voluminous. Really, to appreciate what outstanding zoos are accomplishing in exhibits, buildings, attendance and other features, you should personally visit and see several leading American zoos.

However, I can suggest some of the more important factors which contributed to the success of such outstanding Zoos as St. Louis, San Diego, Chicago, New York, Philadelphia and San Antonio Zoos.

Mr. Don P. Schlegel

-2-
March 13, 1952

We highly recommend fencing the Zoo and charging reasonable admission fee, and for your information, our fee for adults is 25¢ and 10¢ for children, including tax. Various acts in the Zoo are free excepting the concessions, also elephant and donkey rides, etc.

To achieve success the Zoo must be completely removed from politics, and instead operated by a Zoological society composed of prominent, philanthropic citizens. We did this many years ago and from that date forward we consider the success exceeded our fondest expectations whereas dating back from the same period, political zoos are practically all a failure in every respect, including those in America's largest cities.

One of our biggest incomes is derived from the sale of novelties and curios symbolic of Zoos. Originally we had several free days but found it advisable to discontinue all free days, although school children, also convalescing soldiers and other conventions, etc., worthy of free admittance can visit the Zoo free of charge any day by special permission, but of course they must pay the Federal Tax.

Our income is rather gratifying, but not nearly sufficient to operate a zoo of our magnitude, so the City pays all of the labor, also feeding of animals and birds from their 60% of gate receipts plus any additional amount necessary to support these phases of the Zoo. The Society buys all birds and animals with our 40% of the gate receipts, and during the past ten years we have had sufficient money to build numerous buildings for which the City was unable to finance although the City is supposed to finance all building construction.

Incidentally, it is not the amount of money that usually spells the success in creating a better Zoo, but instead the economy in building housing projects at cost with your own crew which usually does not necessitate architects or contracts. This is because Zoo Directors can secure more information from the experience of other Zoos as to the most practical style and size buildings far better than a architect who has had little if any zoo experience.

The same applies to the purchase of animals and birds, and one should be careful in their selection and keep their purchases in line with the Zoo's bankroll. Often this is made possible through exchanges with other zoos, also selecting bargains.

Furthermore, an experienced Director should select the animals and birds which are mostly needed and withhold purchases of extremely rare delicate specimens until the last. For example, it was only last year that we finally purchased a Rhinoceros. Likewise, the Director should carefully select hardy specimens and defer the purchase of delicate specimens such as platypusses, Penguins, Gorillas, Orangutans, Cock-of-the-Rick, Rare Antelope, etc. until you have sufficient cash with which to gamble."

Again I wish to apologize and do sincerely hope you will understand it is through no lack of interest that I cannot furnish you all of the information you want. On the other hand if there are a few pointed questions you would like to ask don't hesitate to write me again, and I will answer these briefly giving you the information to the best of my knowledge from 20 years of experience heading the San Antonio Zoological Society.

Mr. Don P. Schlegel

-3-
March 13, 1952

You have my very best wishes.

Sincerely,

SAN ANTONIO ZOOLOGICAL SOCIETY INC.

✓ ✓
R. H. FRIEDRICH, President

RHF/wr
cc:FWS:HN.

CARL HAGENBECK
TIERPARK

TELEGRAMM-ADR.: HAGENPARK HAMBURG

(24a) HAMBURG-STELLINGEN, DEN March 10th
1952

Mr.
Don P. Schlegel
124 A Glenville Ave.
Allston 34, Massachusetts
U.S.A.

Dear Sir:

I have your letter of the 2nd inst. and should be very glad to help you in the task that you are up to. But you will understand, that I am in great difficulties to comply fully with your wishes, the whole topic being so comprehensive and complicated that it would be impossible to answer all the questions it contains. Building a modern zoo after the Hagenbeck idea has become a much more complicated matter than it was fifty years ago, when we constructed our animal park here at Stellingen for the first time. You may compare this with the first motorcar and the development that the building of such vehicles has taken since its beginning, - an old Ford with modern Cadillac as it is now. All I can do is to send you a guide and some photographs of our zoos which I would advise you to study and extract from it as many points as seems profitable for your composition. Please excuse me not giving you more information, as all I can say would only remain piece-work.

Wishing you could success, I am, dear Sir,

Yours very truly

ppa Carl Hagenbeck

enclosures!
PM:he.

R. CARTER TUCKER
PRESIDENT
VINCENT M. HAGERTY
COMMISSIONER
FRANK A. THEIS
COMMISSIONER

Board of Park Commissioners
WILLIAM E. KEMP, MAYOR
Swope Park Zoological Gardens

WILLIAM T. A. CULLY, DIRECTOR
6701 LISTER AVENUE

Kansas City 5, Missouri

J. V. LEWIS
SUPERINTENDENT OF PARKS
JOHN A. LACY
SECRETARY
HARE AND HARE
CONSULTANTS

July 5, 1952

Mr. Don P. Schlegel
124A Glenville Avenue
Allston 34, Massachusetts

Dear Mr. Schlegel:

I am sorry we do not have a guide book. For the past several years we have been in the process of building a modern zoo, but we still have a great deal to do. War and building restrictions and other things have slowed down our efforts. We have built a fine monkey island and outdoor seal pool, and we are ready to start on an African Veldt.

I might say that there are three important things to take into consideration when designing zoo buildings - the comfort of the animal, the convenience to the keeper, and the view afforded the spectator. I believe in very practical rather than ornamental buildings in a zoo. I feel that the visitor wants the best possible view of an animal, and of course maintenance of a building is of vast importance. We are fortunate in having quite a fine architect, Mr. Edward Buehler Delk, in our Park department.

I am sorry I cannot be of more help to you.

Zoologically yours,

William Cully

WC/mc

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WASHINGTON PARK ZOOLOGICAL GARDEN

OFFICE: 4500 WEST VLIET STREET

GEORGE SPEIDEL, DIRECTOR

JEROME C. DRETZKA,
EXECUTIVE SECRETARY
RUSSELL E. KURTZ
SUPT. OF PARKS

July 8, 1952

Mr. Don P. Schlegel
124A Glenville Ave.
Allston 34, Mass.

Dear Mr. Schlegel:

In reply to your letter of June 26, we do have a guide book that sells for 30 cents including postage that may be obtained by writing the Merchandising Corporation in care of the Zoo at the above address, and enclosing 30 cents in coins.

We are contemplating construction of a new Zoo, however, to date it has not materialized beyond the model stage. I can tell you, however, that we will use moated enclosures and that the animals will be exhibited as much as possible as they occur in Nature. This would involve continental groupings of animals such as North America, South America, Africa, Europe and Asia, Australia. We are also planning to use as much as possible the newer types of glass and plastic that are available today, this instead of using bars and screens.

For your information, construction has been actively completed on a new ape house at the Bronx, N.Y. Zoo, on a new lion house and a birdhouse in Philadelphia, a new birdhouse in Cleveland, and there has also been some building in Toledo, Kansas City, and Seattle has built a new birdhouse and bear dens that you might be interested in knowing about.

Trusting this information will be of help to you,

Sincerely yours,

George Speidel
Director

mg



JARDIM ZOOLOGICO

QUINTA DA BOA-VISTA

SÃO CHRISTOVÃO

RIO DE JANEIRO

N.º 34

Em, March 12, 1952.

DON P. SCHLEGEL
124 A Glenville Ave.
Allston 34 Massachusetts
U. S. A.

Dear Sir,

It would be very difficult to send you a comprehensive report with all the data that would be necessary to your work. I believe, however, that a few informations will be helpfull.

The Rio de Janeiro Zoo is about 25 acres large and we have:

Birds ----- 1 106

Mammals --- 263

Reptils --- 170

and about 350 cages or different kinds of enclosure

Personnel: 1 - Superintendent;
2 - Zoologists;
3 - Veterinarians;
4 - Vet. helpers;
1 - Head keeper;
1 - Head gardener;
1 - en charge of feeding;
1 - en charge of animal moving;
1 - Man to handle ferocious animals;
10 - For preparation and distribution of food;
62 - Animal keepers;
47 - Wards;
20 - For general care of the garden.

Animals are usually bought from animal importers at prices identical to the ones bought in your country, since we receive the

same lists. We also exchange about 20% of the animals with Europe and the States. We send Brazilian species in exchange for exotic. Another source is donation. Usually wild cats, jaguars, anacondas, birds and vermin are offered during the year, the total amount being less than 5% of our total number.

Improvements in the Zoo are planned with the general idea of having the animals a few showing, for instance, native birds in large ponds copying natural environnement.

One problem that we believe would be interesting to your research is "how to keep children busy" inside the park. They are the greatest problem in the attendance at the Zoo. We have a play ground, train and we are going to receive mechanical elephants. We think also of constructing an open air roman circus to maintain shows during visitings hours.

Yours sincerely,

Dr. João Moojen
Zoologist.

/ICA.

PHILADELPHIA ZOOLOGICAL GARDEN

UNDER THE MANAGEMENT OF THE
Zoological Society of Philadelphia

34TH STREET AND GIRARD AVENUE

ZONE 4

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FREEMAN M. SHELLY

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March 11, 1952

Mr. Don P. Schlegel
124 A Glenville Avenue
Allston 34, Massachusetts

Dear Sir:

The scope and magnitude of a reply to your request of March 1st would be much too voluminous to set forth in a letter. Such information could be imparted to you most satisfactorily only by interview.

Accordingly, if you are interested, I would be greatly pleased to have you come to Philadelphia and be afforded the opportunity to give you in minutest detail the background necessary for your thesis. You should be prepared to spend an entire day with me as, surely, that much time at least will be necessary.

Yours very truly ,

ZOOLOGICAL SOCIETY OF PHILADELPHIA

D i r e c t o r

FMS/mc

SMITHSONIAN INSTITUTION
NATIONAL ZOOLOGICAL PARK

WASHINGTON 9, D. C.

OFFICE OF
DIRECTOR
NATIONAL ZOOLOGICAL PARK

March 11, 1952

Mr. Don P. Schlegel
124A Glenville Ave.
Allston 34, Mass.

Dear Mr. Schlegel:

In reply to your letter in regard to your thesis on the construction of a modern Zoo, we have little published material from the National Zoological Park except our annual report, and we are sending you some copies of that.

Some years ago I wrote a book which was the history of the first forty years of the National Zoological Park, in which there might be some points of interest for you. It is called "Wild Animals in and out of Captivity", and is Volume 6 of the Smithsonian Science Series. It could probably be obtained in a nearby library.

It might be of interest for you to secure guide books from various zoos, so we are enclosing a list of the principal zoos of the United States. Many of them issue very nice guide books which have a lot of information in them. They are usually for sale at a small price.

Very truly yours,

W. M. Mann
Director

Enclosures

LIST OF ZOOS IN THE UNITED STATES

Avalon, California
Catalina Island Bird Park

Boston, Massachusetts
Franklin Park Zoological Garden

Buffalo, New York
Zoological Garden, Delaware Park

Charleston, South Carolina
Department of Parks and Playgrounds

Chicago, Illinois
Brookfield
Chicago Zoological Park

Lincoln Park Zoo

Cincinnati, Ohio
Cincinnati Zoological Park

Cleveland, Ohio
Cleveland Zoological Park

Colorado Springs, Colorado
Cheyenne Mountain Zoo

Dallas, Texas
Parks Department

Denver, Colorado
Denver Zoological Garden

Detroit, Michigan
Belle Isle Park Zoo

Duluth, Minnesota
Duluth Zoological Garden

Evansville, Indiana
Mesker Zoo

Fort Worth, Texas
Fort Worth Zoo

Houston, Texas
Houston Zoological Garden

Kansas City, Missouri
Swope Park, Zoological Garden

LaFayette, Indiana
Columbia Park Zoo

Madison, Wisconsin
Henry Vilas Park Zoo

Memphis, Tennessee
Memphis Zoological Garden

Milwaukee, Wisconsin
Milwaukee Zoological Garden

New Orleans, Louisiana
New Orleans Zoological Garden

New York, New York
New York Zoological Park - Bronx

Central Park Zoo

Staten Island Zoo

Philadelphia, Pennsylvania
Philadelphia Zoological Garden

Pittsburg, Pennsylvania
Highland Park Zoological Garden

Portland, Oregon
Portland Zoo

Providence, Rhode Island
Roger Williams Park Zoo

Royal Oak, Michigan
Detroit Zoological Park

San Antonio, Texas
Brackenridge Zoological Park

San Diego, California
Zoological Garden of San Diego

San Francisco, California
San Francisco Zoo

San Simeon, California
W. R. Hearst Zoological Garden

Seattle, Washington
Woodland Park Zoological Garden

Springfield, Massachusetts
Forest Park Zoological Garden

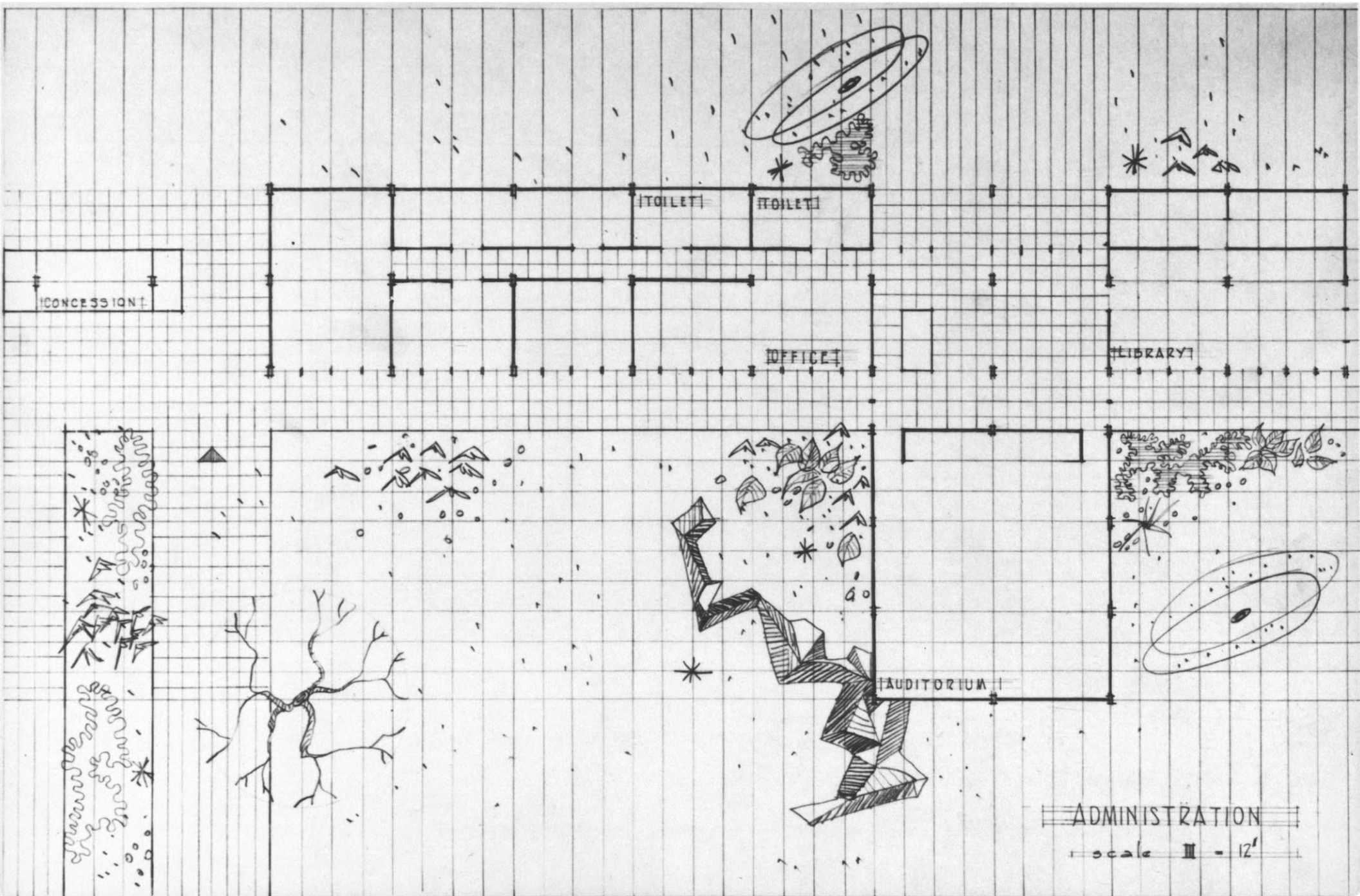
St. Louis, Missouri
St. Louis Zoological Park

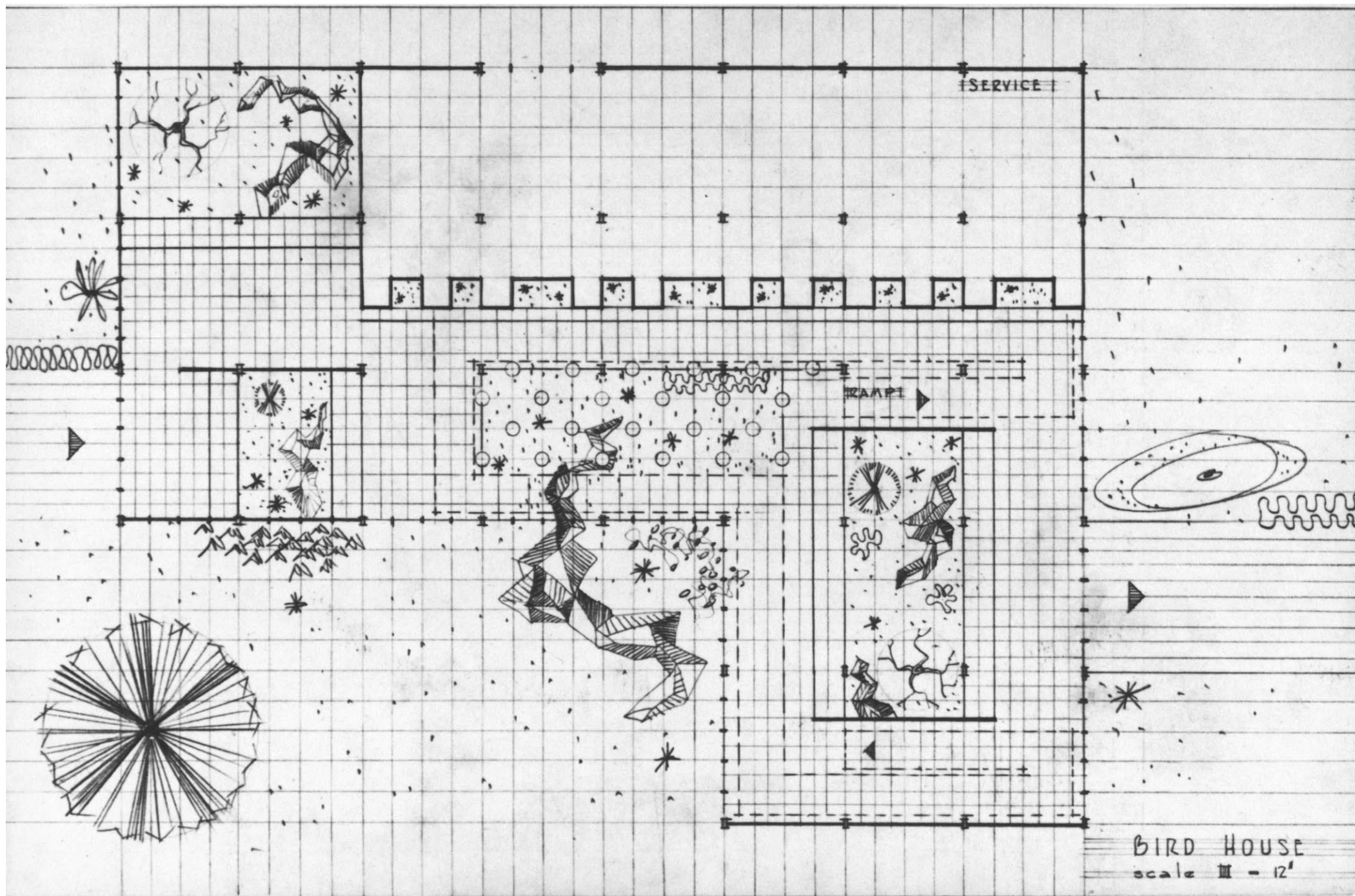
Toledo, Ohio
Toledo Zoological Park

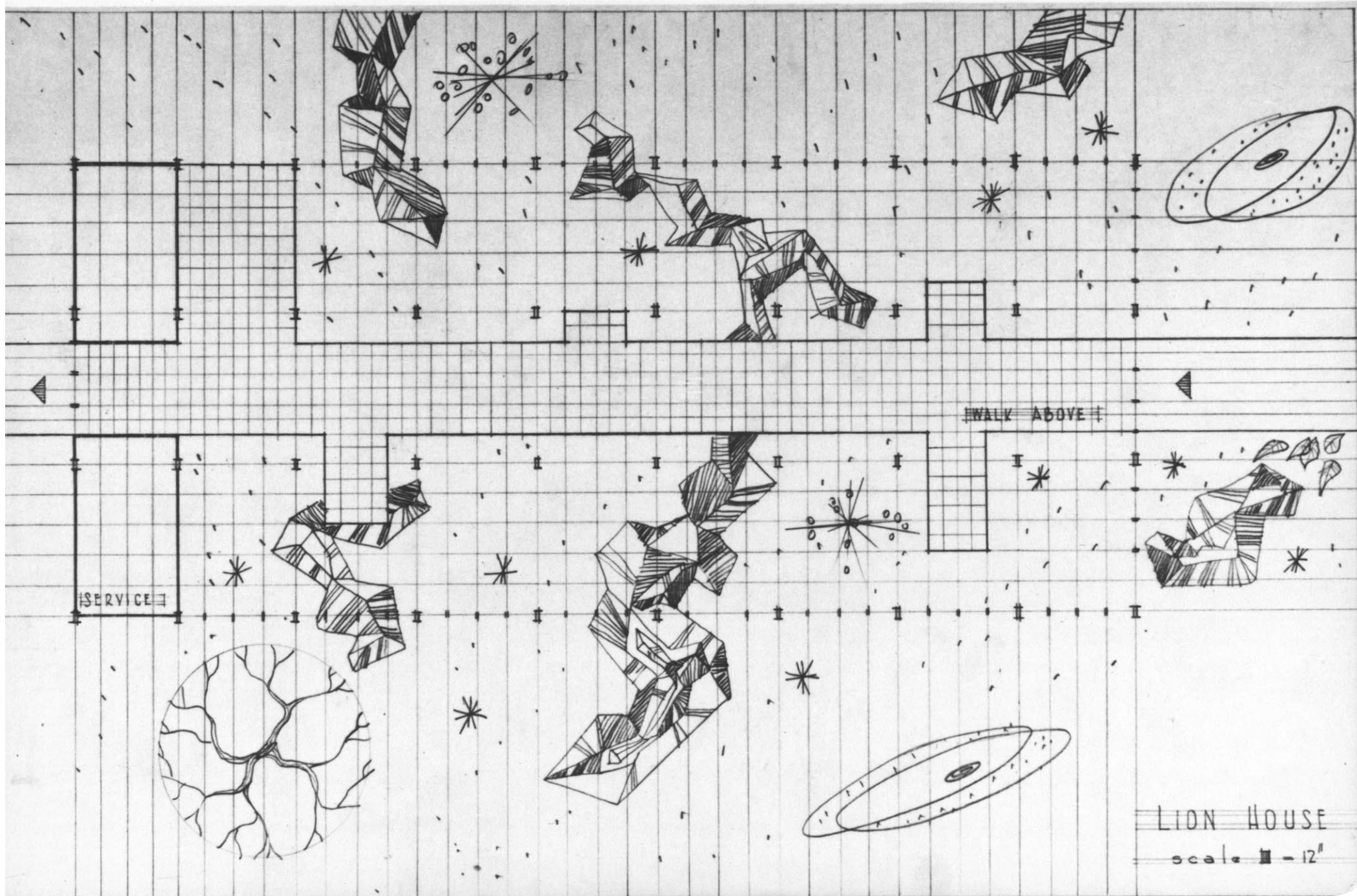
Toronto, Ontario, Canada
Riverdale Park Zoo

Tulsa, Oklahoma
Tulsa Zoological Garden

Washington D. C.
National Zoological Park





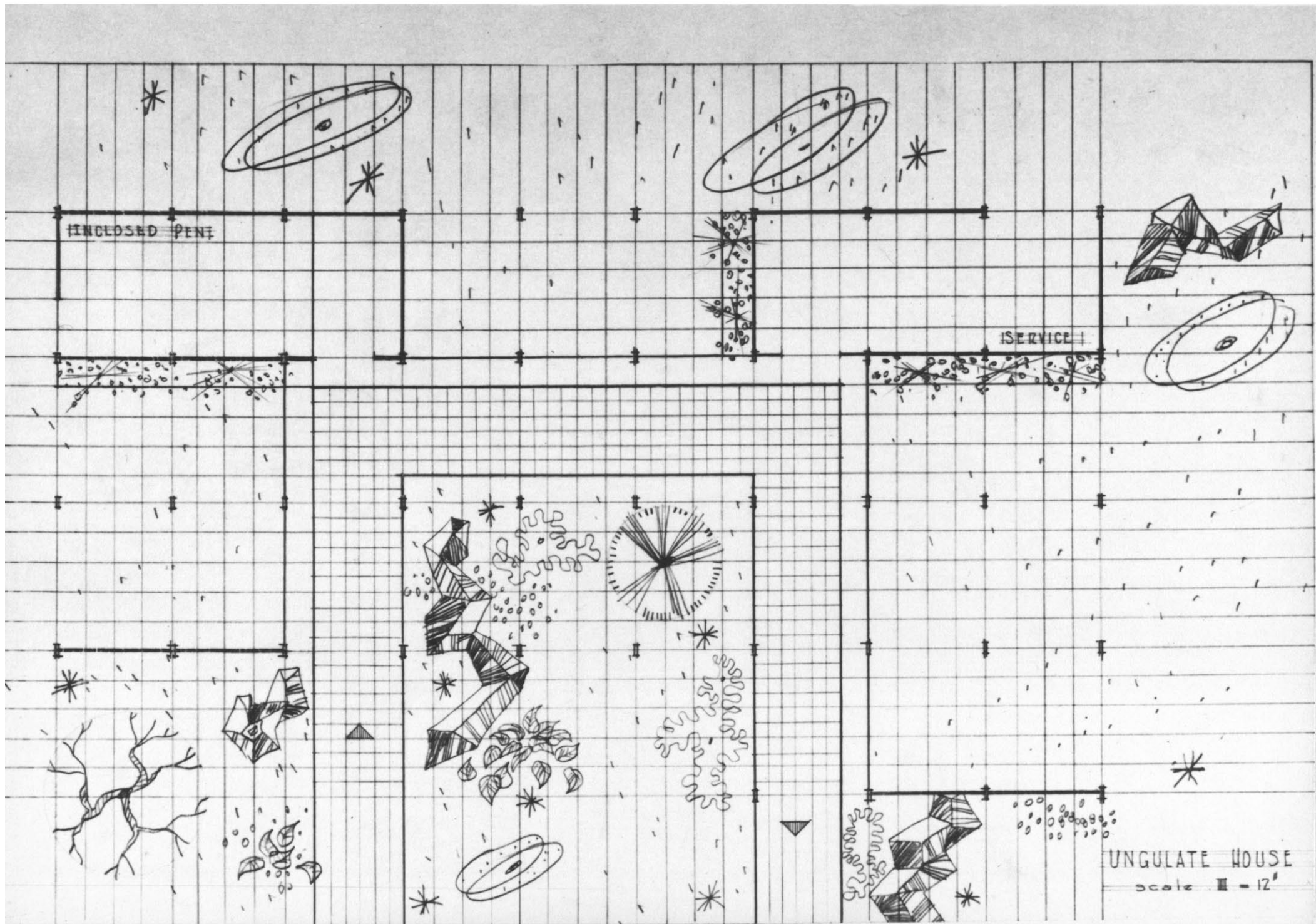


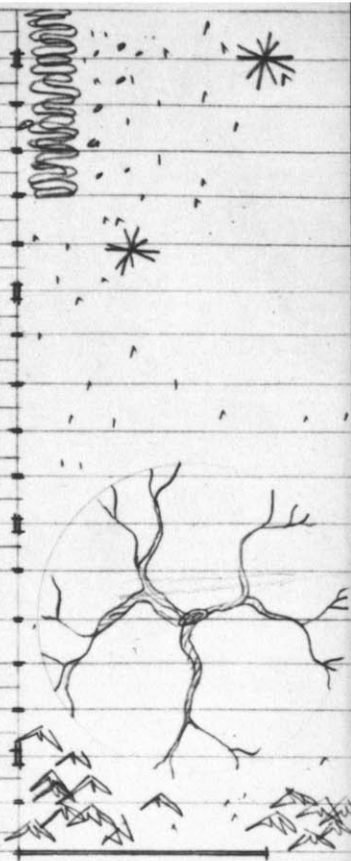
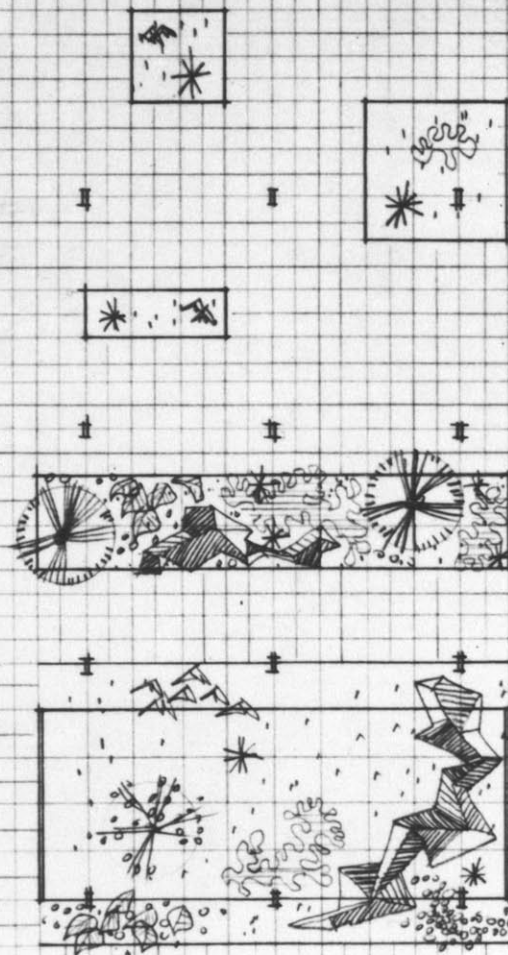
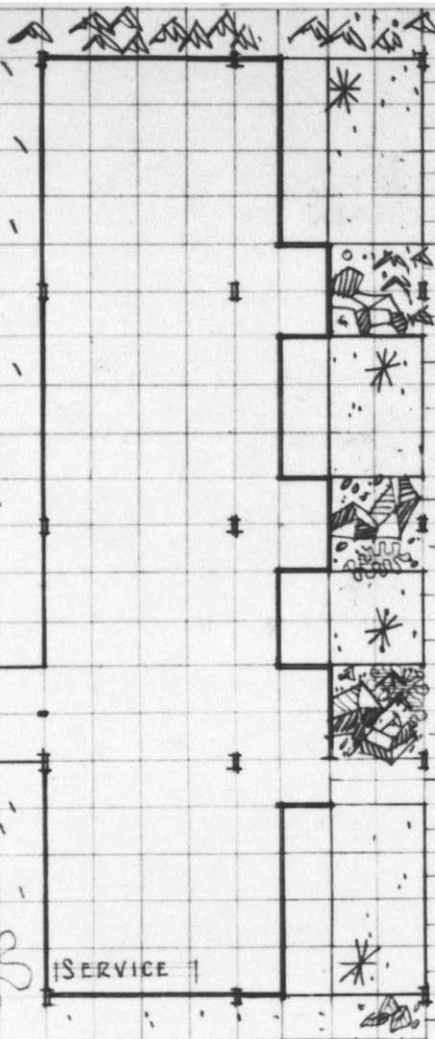
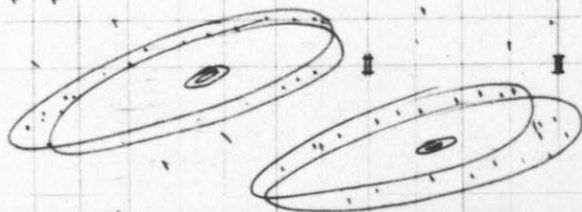
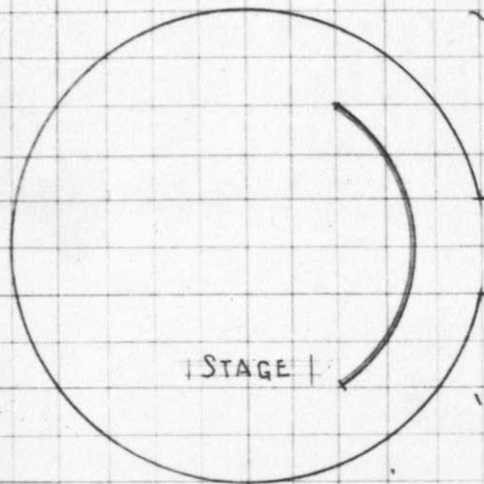
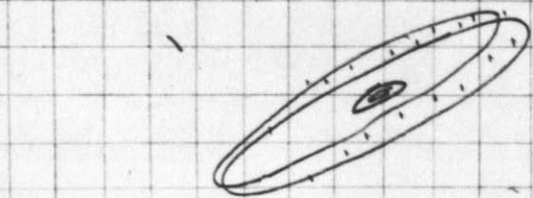
LION HOUSE
scale 1" = 12'

ENCLOSED PEN

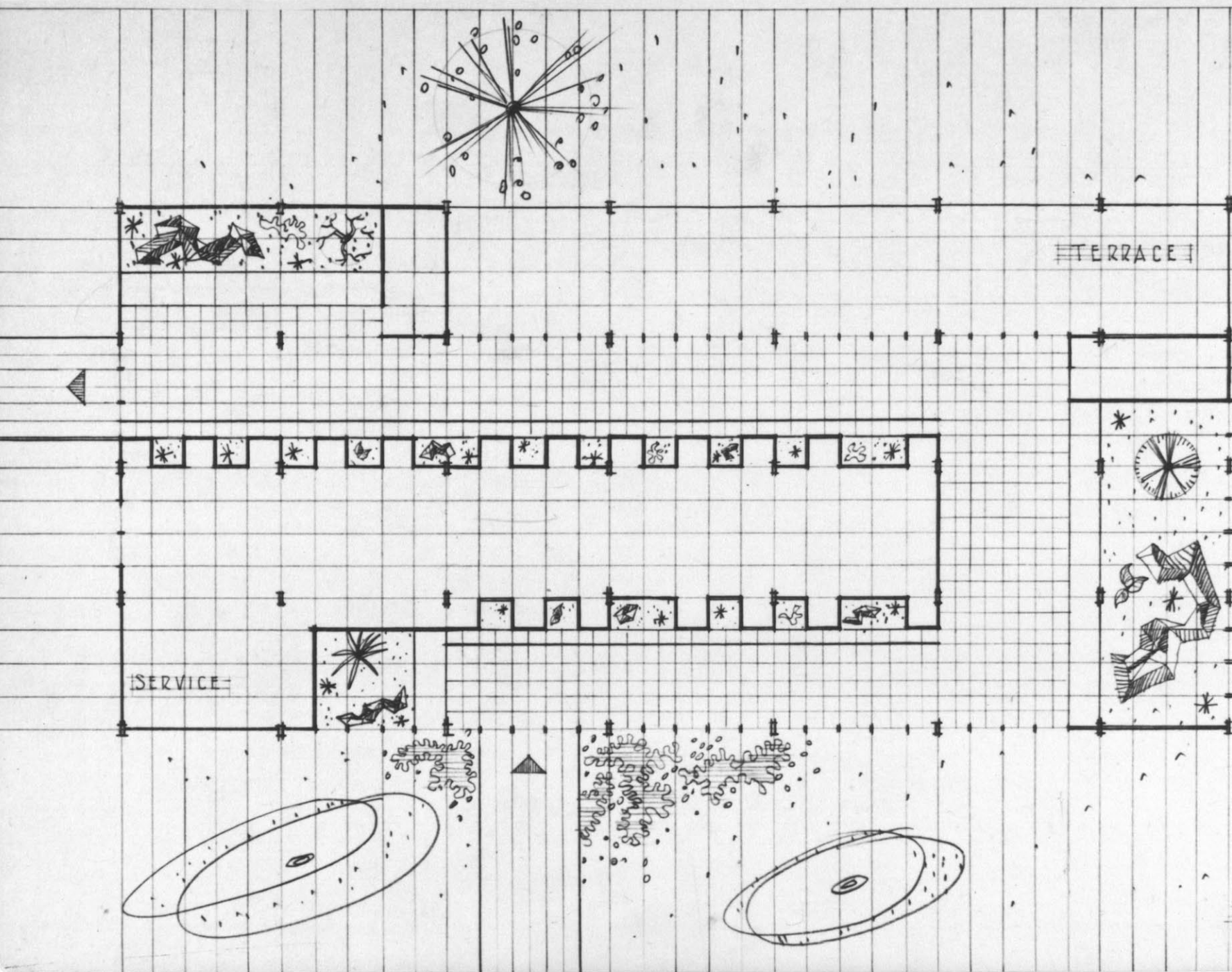
SERVICE

UNGULATE HOUSE
scale 1" = 12'



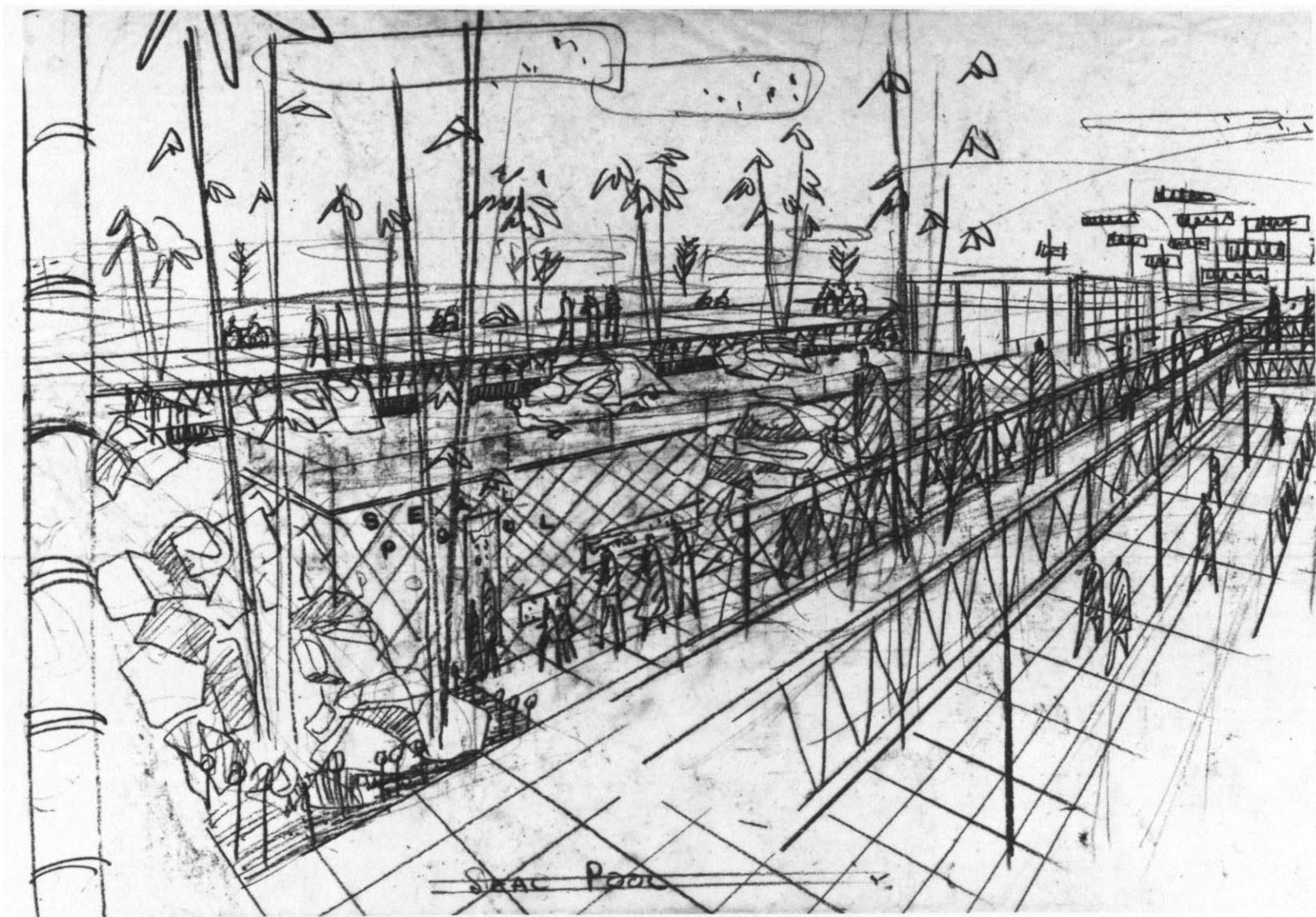


PRIMATE HOUSE
scale 1" = 12'

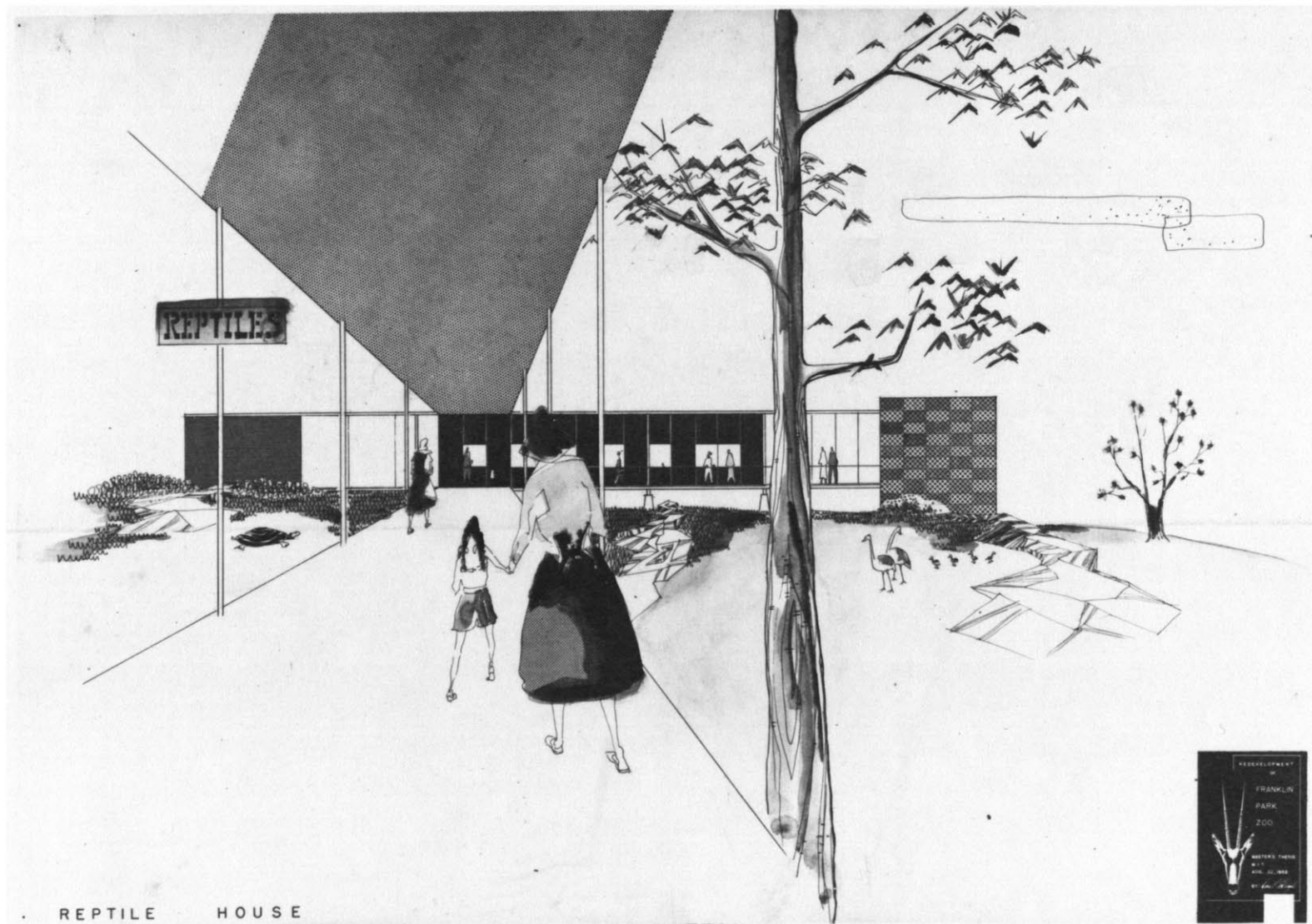


REPTILE HOUSE
scale ■ = 12'



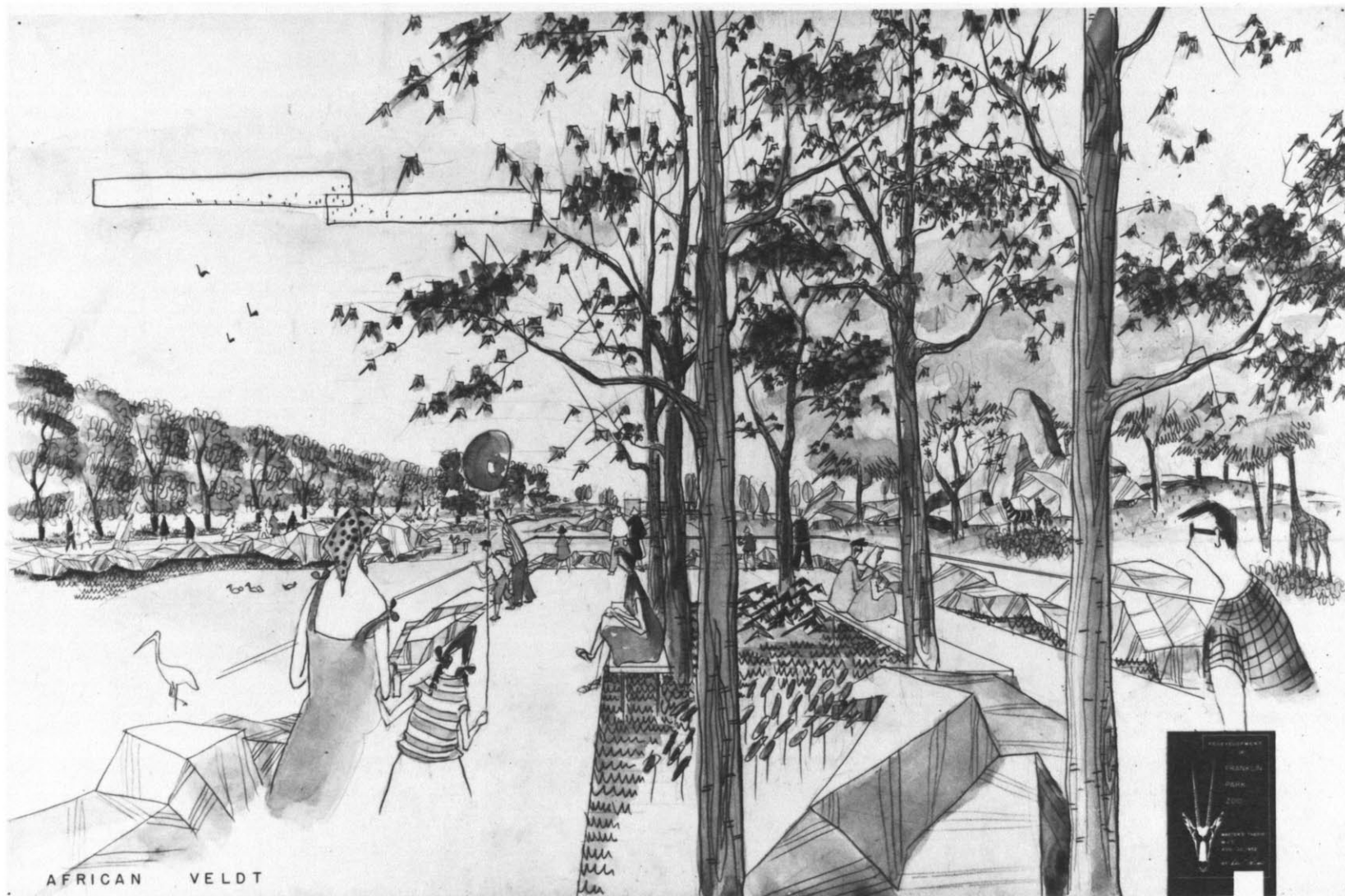


SPAC POOL

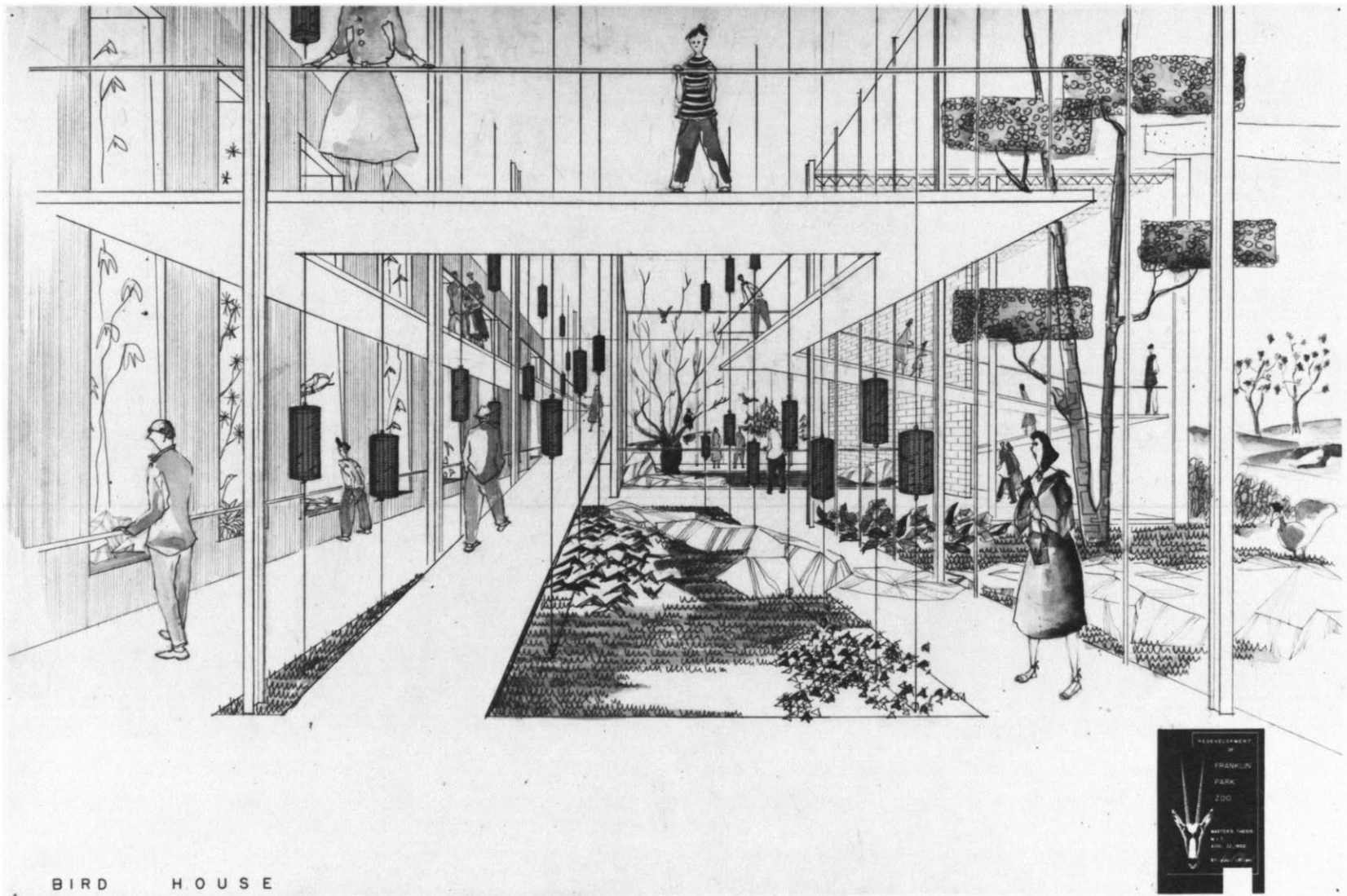


REPTILE HOUSE



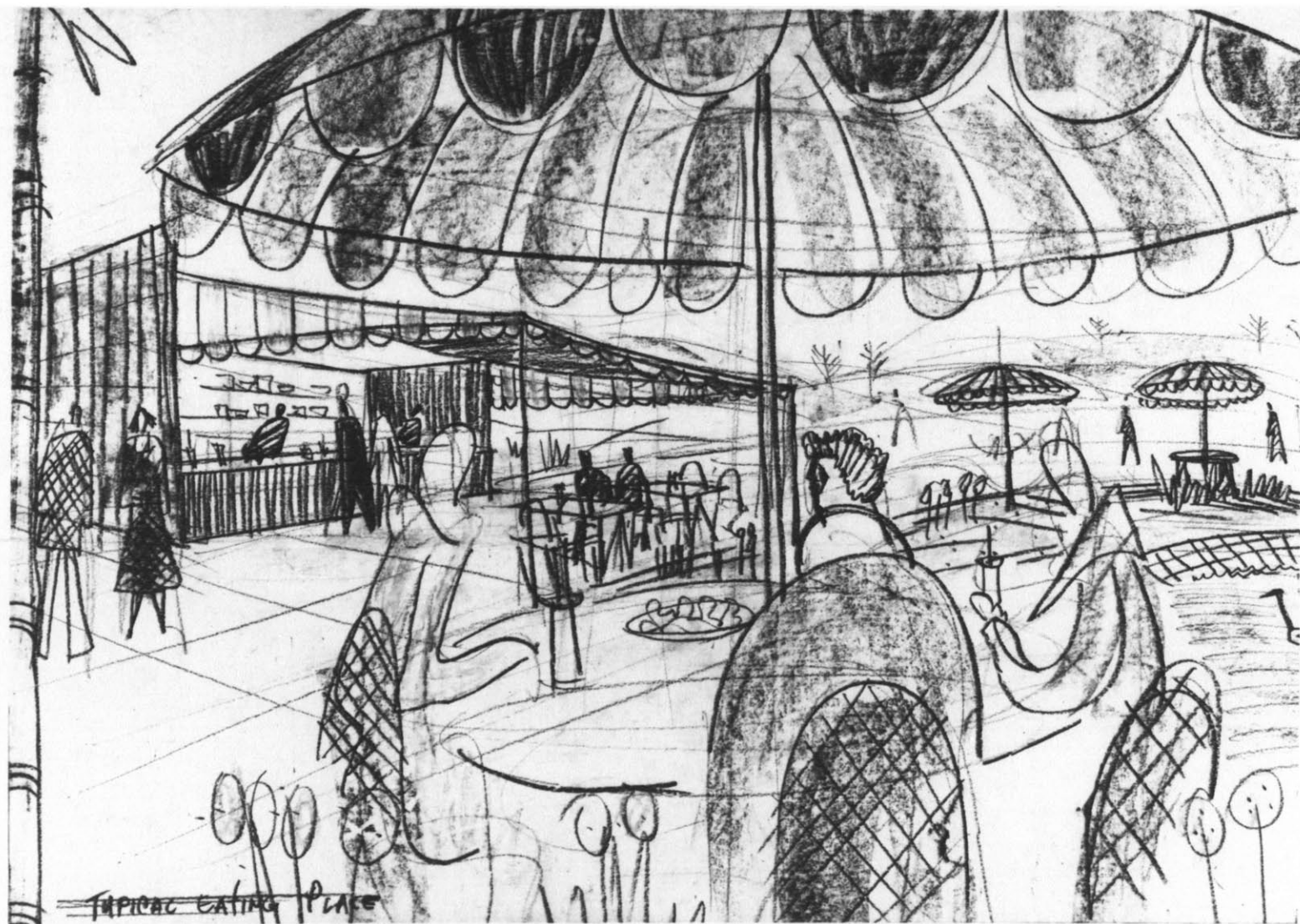


AFRICAN VELDT

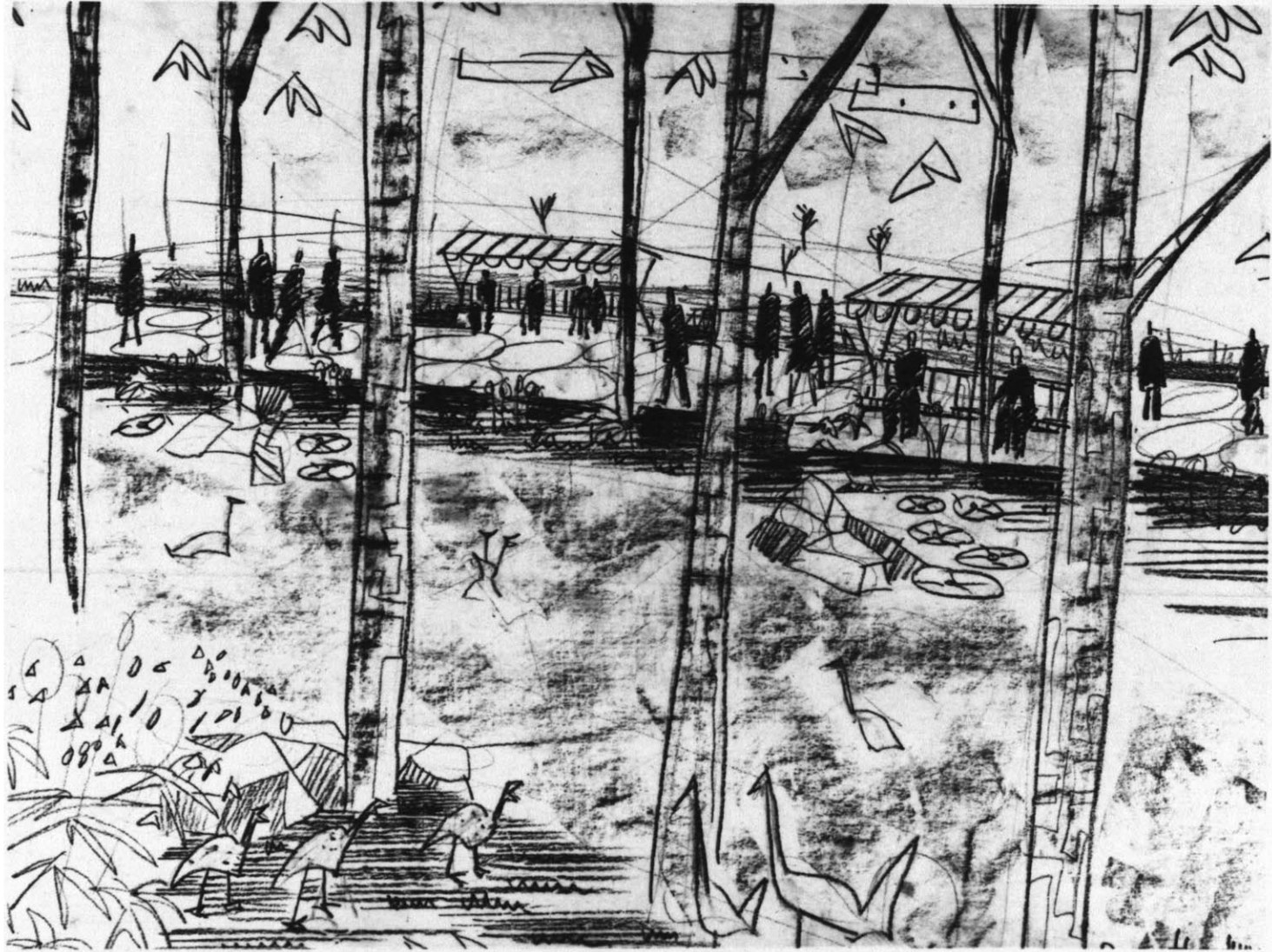


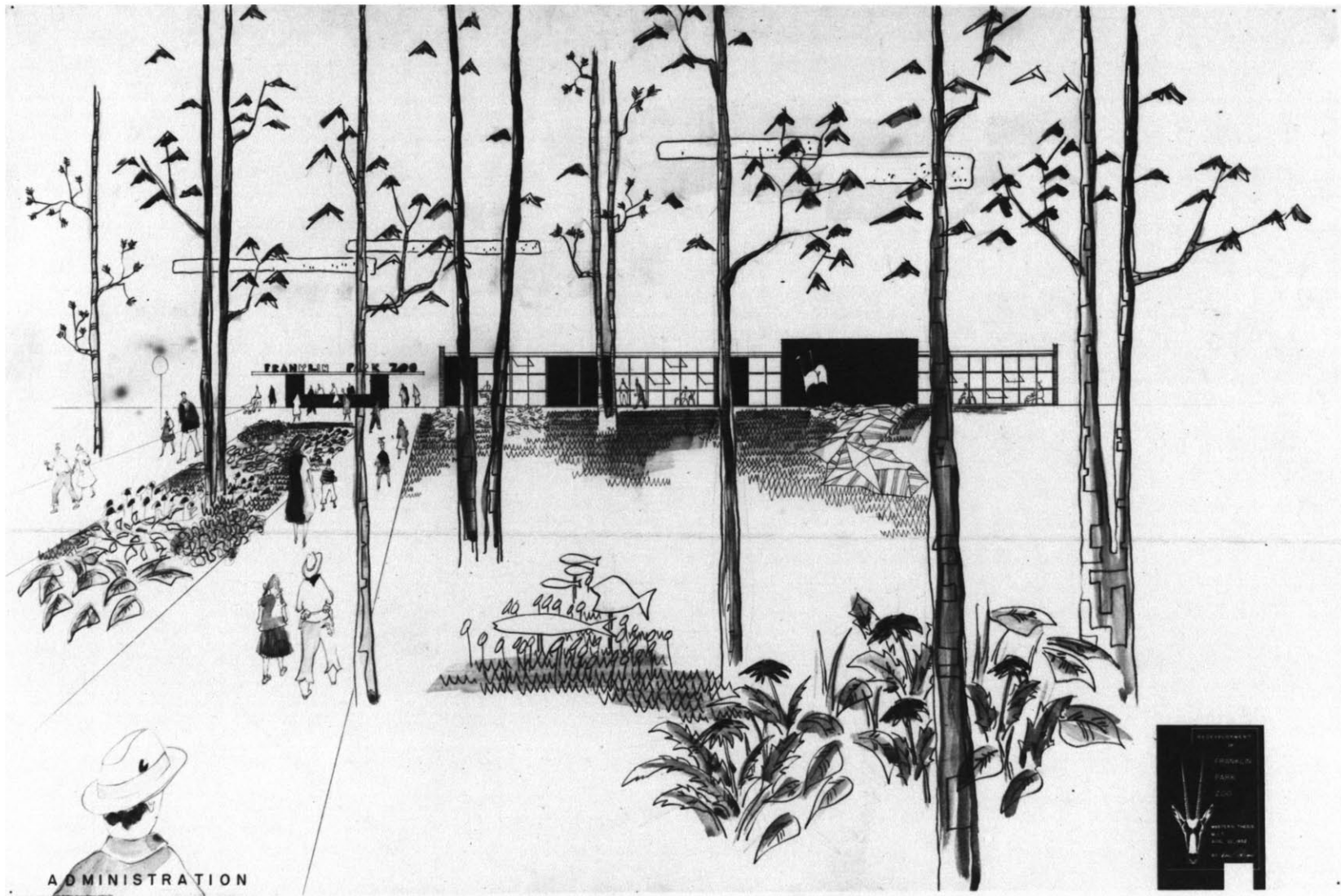
BIRD HOUSE

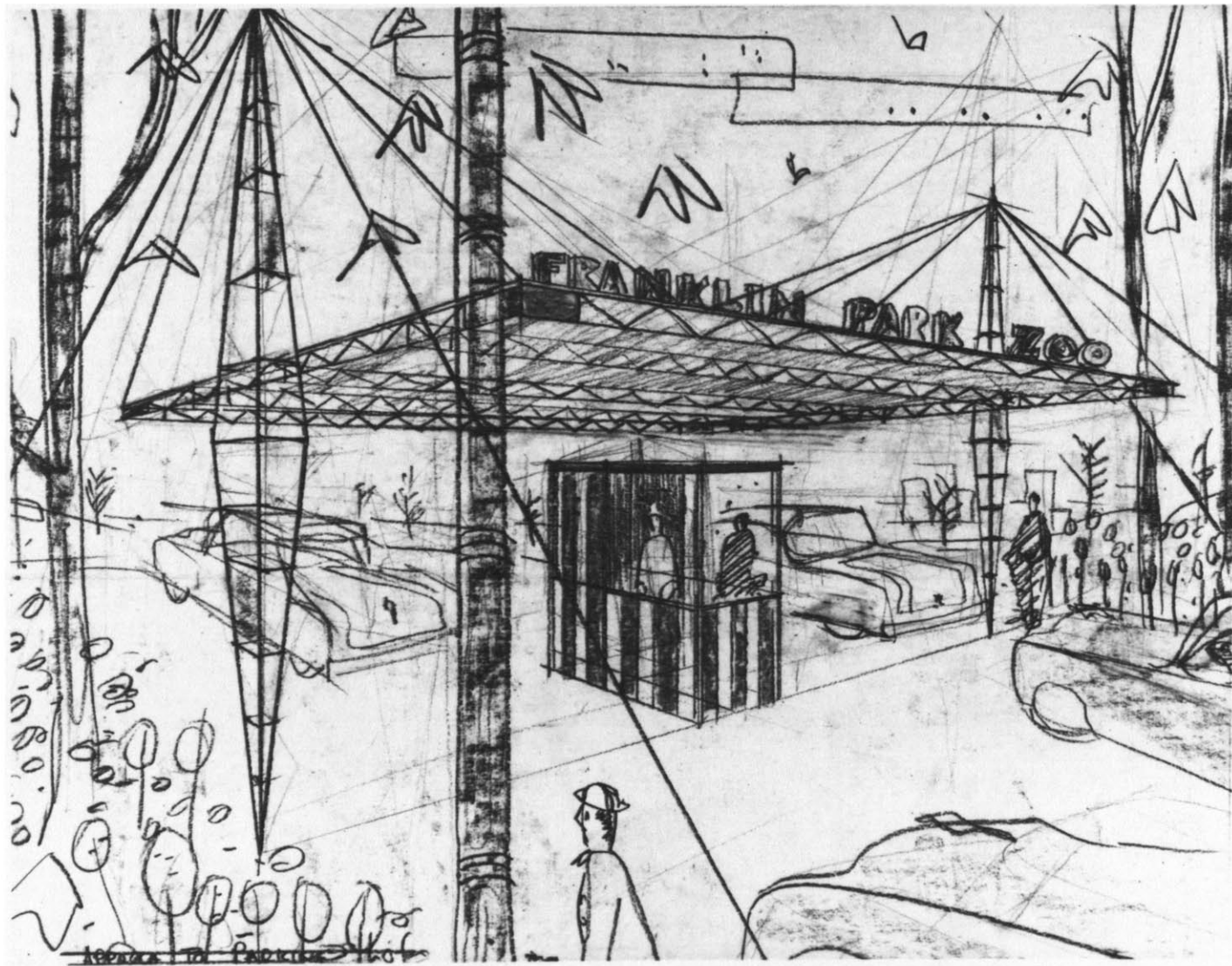


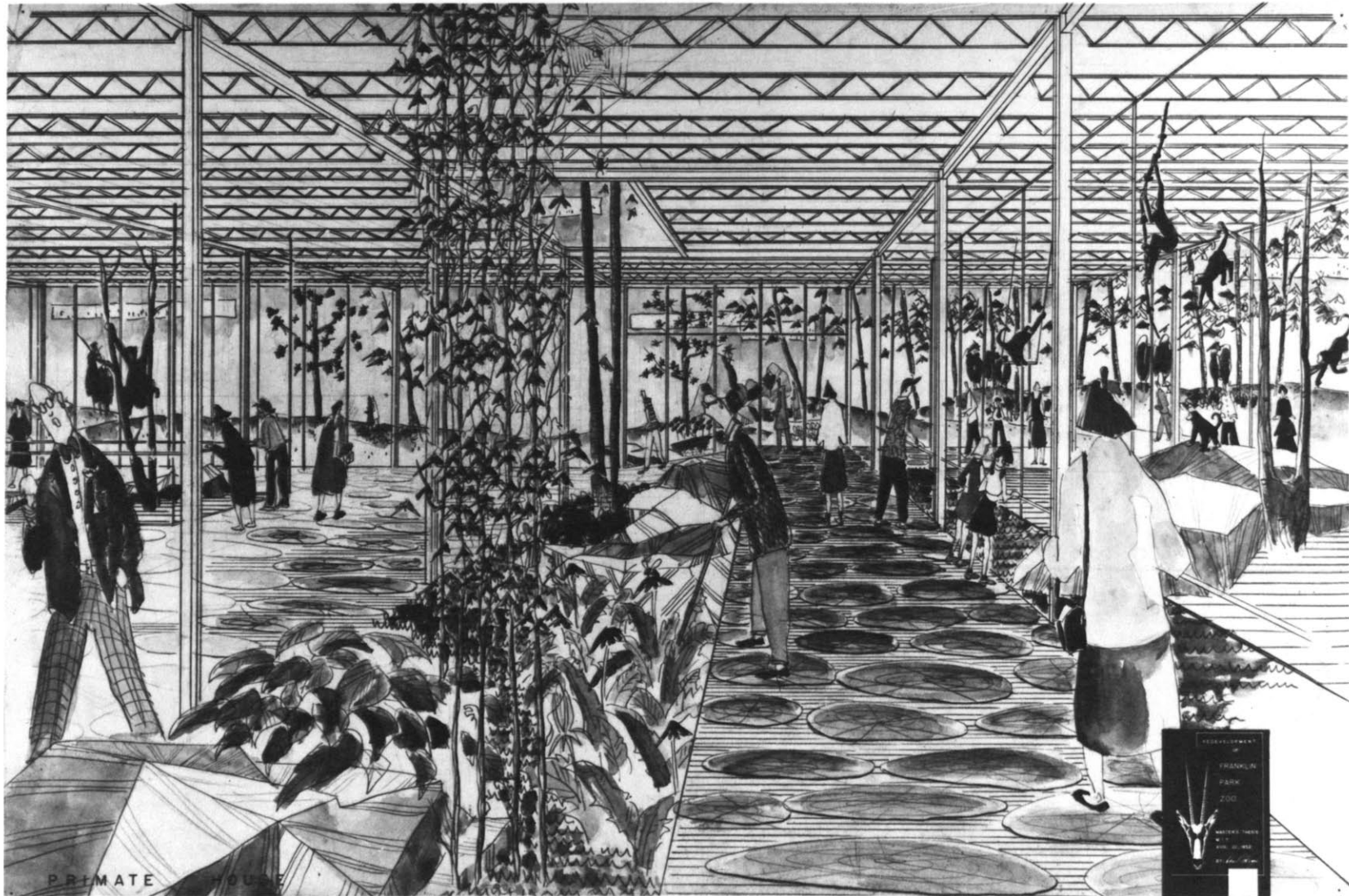


TROPICAL EATING PLACE



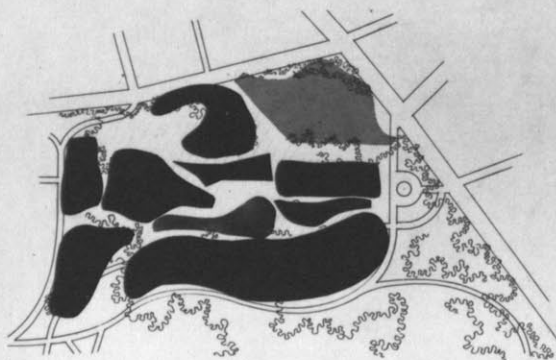
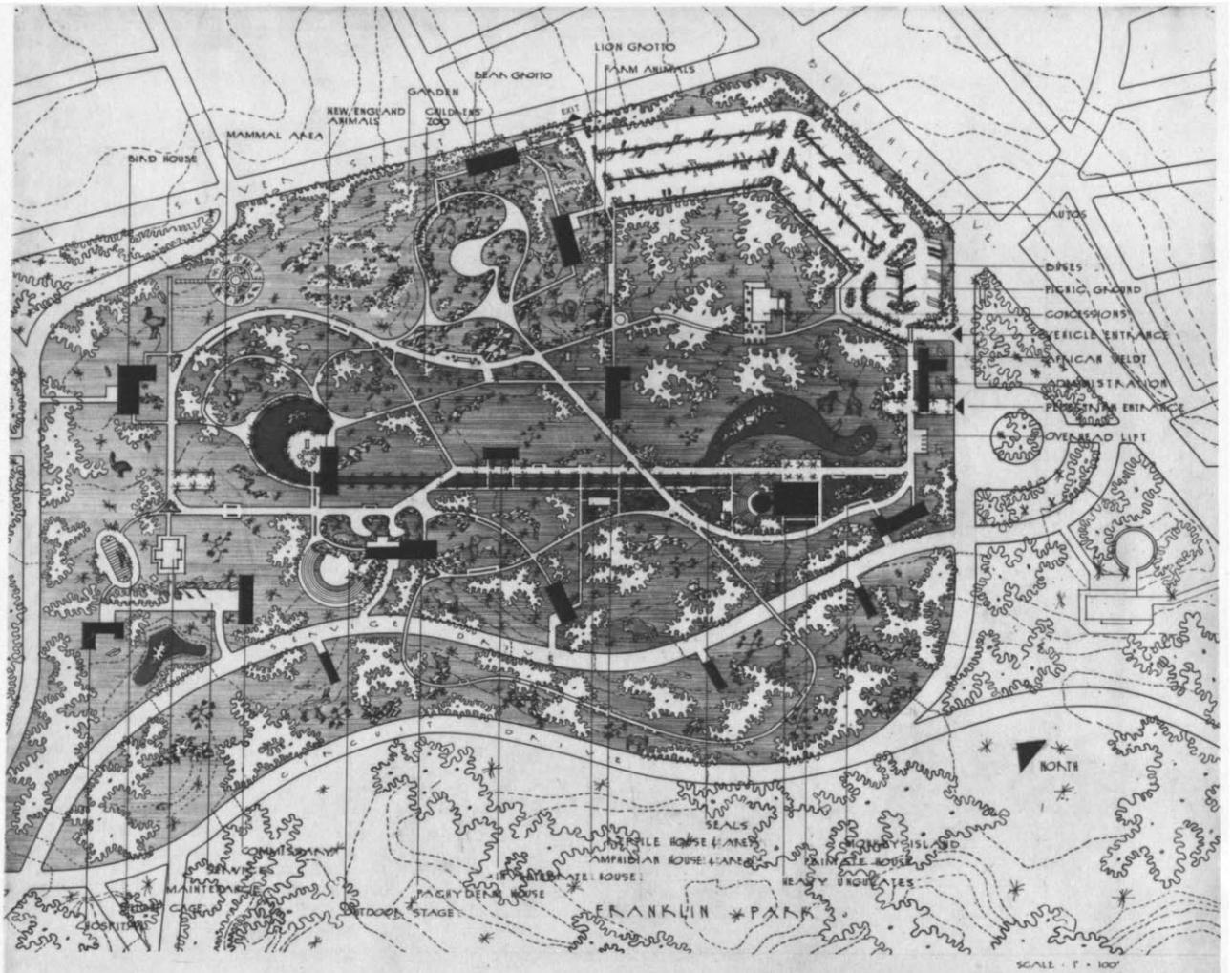






PRIMATE HOUSE



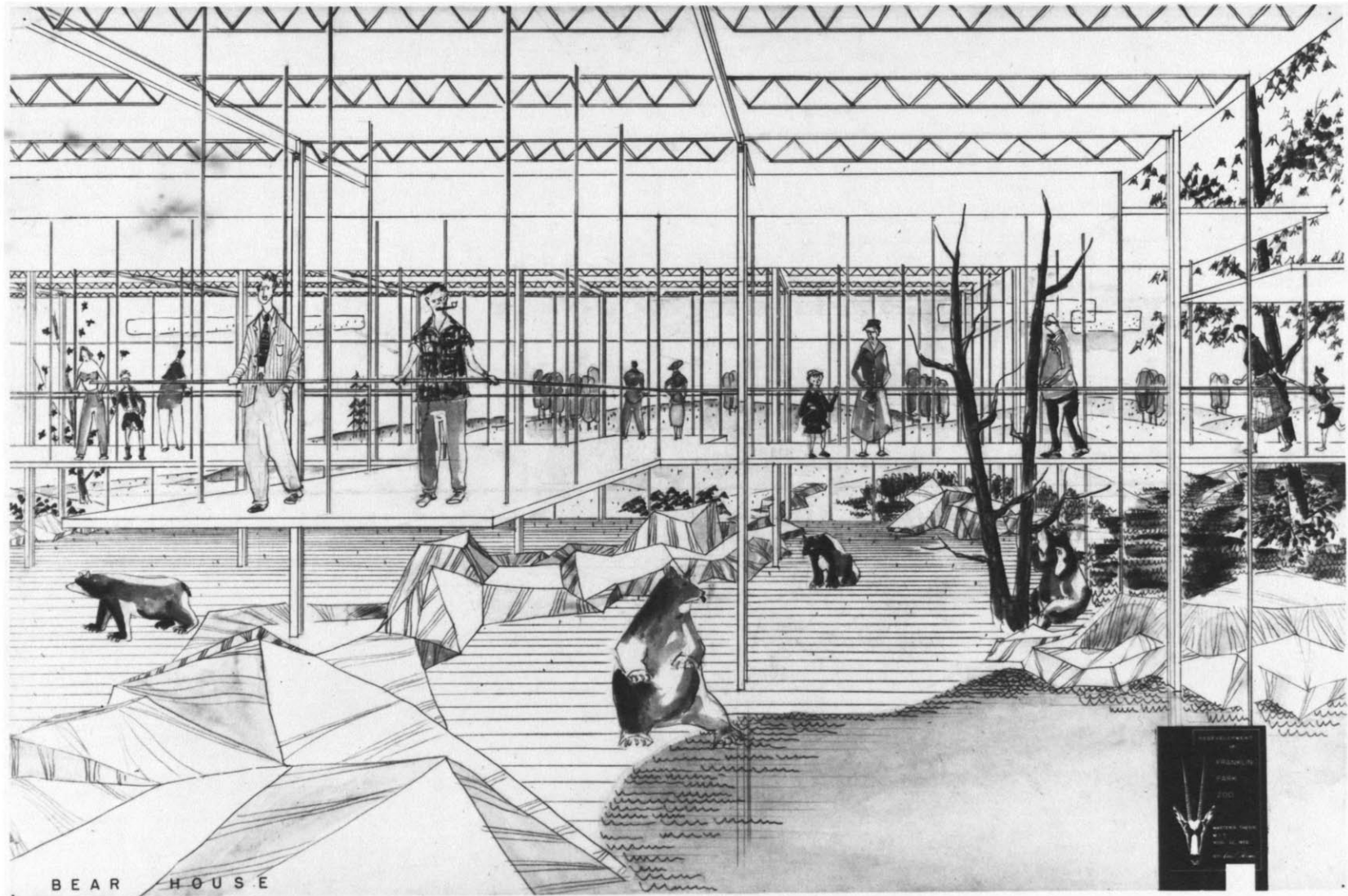


AREA DEVELOPMENT SEQUENCE

- 1ST
- 2ND
- 3RD
- 4TH
- 5TH
- 6TH
- 7TH
- 8TH
- 9TH
- 10TH

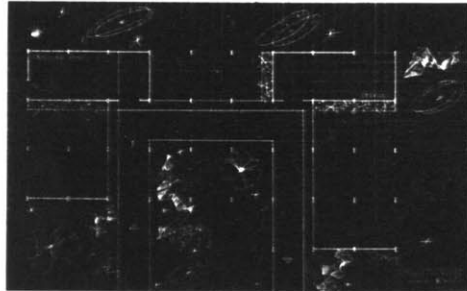
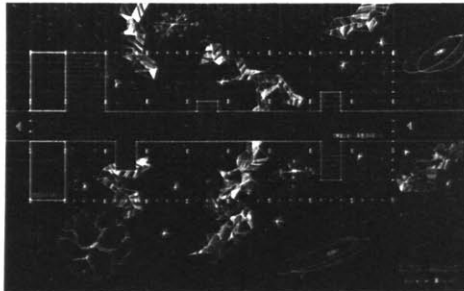
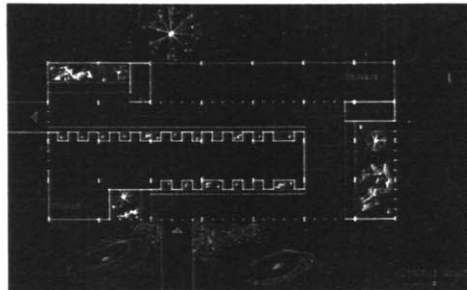
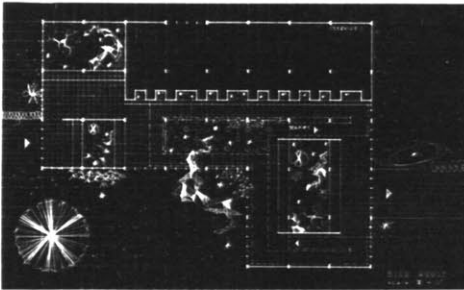
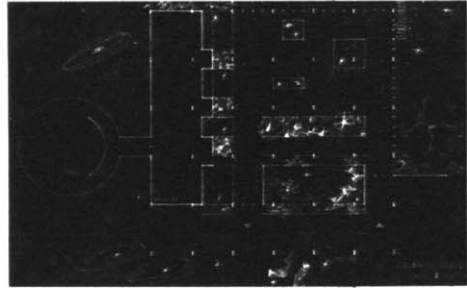
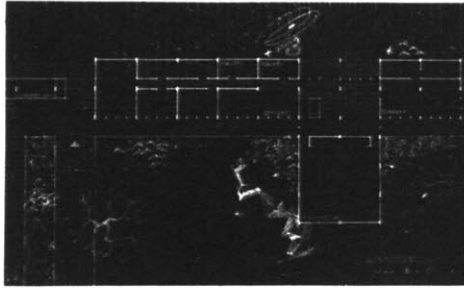
SITE PLAN





BEAR HOUSE





BUILDING PLANS



